NATIONAL TRANSPORTATION SAFETY BOARD
VERBATIM TRANSCRIPT OF INTERVIEW WITH

MMC(SS) CURTIS M. STREYLE

CONDUCTED AT COMMANDER, SUBMARINE SQUADRON 1, CONFERENCE ROOM, 822 CLARK STREET, BUILDING 661, PEARL HARBOR, HAWAII

ON 13 FEBRUARY 2001

MR. SCHEFFER: Okay, good afternoon, and the time is approximately 1430, and my names is James Scheffer, I'm the Investigator in Charge. I'm with NTSB and we are here this afternoon to conduct an interview with the crewmembers of the USS GREENEVILLE, yes, which was involved with the collision between them and the fishing vessel, the *Ehime Maru* on the afternoon of February 9, 2001. Here with me are two other investigators from the NTSB. I have Mr. Tom Roth-Roffy and I have Mr. Bill Woody, and we would like to have the other introductions at the table.

LT HEDRICK: LT Doug Hedrick, United States Navy.

LT JOHNSON: LT Charlie Johnson, United States Coast Guard.

LCDR SANTOMAURO: LCDR Rich Santomauro, United States Navy.

LTJG KUSANO: LTJG Ken Kusano, United States Coast Guard

CDR CACCIVIO: CDR Caccivio, COMSUBPAC.

MR. SCHEFFER: And I would like to say that the other parties to the investigation are the United States Navy, the U.S. Coast Guard and the owners of the fishing vessel *Ehime Maru*. It should be noted that there is no representative here from the owners of the vessel. We'd like to start off today with, the questioning the diving officer aboard the vessel, and I'd just like him to state his name his name, and his, okay position for, for the record.

WIT: My name is Curtis Streyle, I'm a Chief on the USS GREENEVILLE, a machinist mate chief in charge of weapons.

MR. SCHEFFER: Okay, thank you Chief. I'd like to just start out here, okay, with you, ...

LT HEDRICCK: I'd like to clarify the issue that the diving officer of the watch is not the diving officer. The diving officer is actually a ship's position also.

MR. SCHEFFER: Okay, the Diving Officer of the Watch.

WIT: Right

MR. SCHEFFER: I'd like you to, you know, tell the, okay, story that day from, from the time, you, uh, okay, got underway into, okay, after the accident, which re, you know re, you know relying on most of the details, you know, you know just prior to the incident around that case there. So just take your time, and tell us the story.

WIT: Okay, uh, on February the 9th, uh, we mustered onboard the boat, uh, early morning approximately, uh about 5:30 in the morning. Uh, to conduct evolutions and make everything ready for, uh, VIP tour, uh, that day. We, uh, got everything, uh, ready in regards to bringing the ship D-O-D-S (phonetic) and stuff like that. Myself, I was in charge, of uh, handling lines topside to start off.

(Someone whispers, "Go slower")

WIT: Okay. I was in charge of handing lines topside during the day. We stationed the wardroom watch around 8 o'clock in the morning, uh, along with receiving the VIPs onboard. Shortly after that we conducted the maneuvering watch were, uh, I was a member, of , uh, in charge of the, uh, line two, making sure that we casted off, uh, casted off lines, got underway, everybody, uh, allowed some of the VIPs to go topside while we exited the, the uh, the channel. Once we were, uh, getting near the, uh, end of the **farb (phonetic**) maneuvering which exit, everybody went below, and we **reamed** topside for dive and, uh, and as far as myself, I went below to the crew's mess where I spent, uh, the majority of an hour and a half talking with, the, uh, people that were onboard the boat. Uhm, from there I went to the torpedo room, approximately 9 o'clock and, uh, laid down, and got about an hour catnap, waiting for, uh, time to go on watch. Uhm, chow time for me was approximately 11 o'clock. We went, I went and had chow and approximately at 1120; I went and took watch as Diving Officer of the Watch. During that whole time, during the morning we were transiting out going to the dive point, uh, the submarine dove, and, uh, we, uh, just continued to, uh, escort the VIPs around the ship and explain to them what the, uh, the submarine was doing. At 1120, I, uh,

took the watch as diving officer of the watch, in control, uh, at that time I had, uh, two planesmen who were leaving, as well as the chief of the watch. While I took the watch, uh, the officer of the deck that was relieved was Mr. Coen and we discussed the upcoming evolutions that we would be doing. At the present time, uh, the Captain had a group of individuals, uh, having, uh, lunch in the wardroom, so we were running, uh, approximately at 400 feet and, uh, a minimum...maintaining minimum bubble which was close to a zero bubble, and probably about a two thirds bell. Uh, we were just transiting the area, going out, and waiting for chow to be finished. Uh, we had a group inside control and we were explaining to them, you know, the uh, the engineer was explaining to them the different things that the submarine does while we continue to drive through the water. We continued that for probably close to 1 o'clock where we just, uh, continued transiting with minimum bubble. We did some up and down between, uh, 400 feet and 600 feet with minimum bubble, about 3 degrees change in depth and stuff like that. Uh, around 1 O'clock we, uh, got people assembled in control, uhm, and stationed in order to conduct angles and dangles on the submarine where we commenced to do. So once the Captain came into control and verified that I had an adequate trim, meaning that the trim on a submarine whenever I can go 1-5-0 feet was adequate enough to maintain a one third bell and keep us at, uh, a pretty close to a zero bubble. Uhm, we were at 400 feet at this time and we commenced doing some angles and dangles for about 20 minutes. Meaning, we, uh, drove the ship between 200 feet and 600 feet or an approximately area there with angles anywhere ranging from 10 to 30 degree up and down angles. After that was completed we brought the ship back to 400 feet in order to do high-speed turns. Uhm, at that point we commenced to do high-speed turns for about 5 or 6 minutes to the right, left, with large rudder angles. Where the ship was running at a flank bell. Once we completed with the high-speed turns it was probably a quarter after one or somewhere in that area, I'm not exactly sure. The, uh, the Captain, discussed the concept that we, uh, the ship was going to be doing an emergency blow, uh, in order to, to, reflect upon on how the submarine operates with an emergency blow. He, uh, was on the 1MC explaining to the VIPs what the ship would be doing. He asked the Officer of the Deck to bring us up to 1-5-0 feet, and also the Deck ordered me to make, uh, to bring the submarine to 1-5-0 feet. We came up to 1-5-0 feet, ordered up two thirds bell and we did a baffle clear to the right and to the left, uh, uhm, I'm not sure exactly how long we were at 1-5-0 feet to tell you truth. I knew that they were, uh, discussing with sonar what was going on and stuff, making sure that everything was clear, but, uhm, there was no

indications of, uh, anything out there, so. Uh, we sat there at 1-5-0 feet doing our baffle clear and then at that point, the Captain, uh, talked to the Officer of the Deck about taking the ship to periscope depth. The Officer of the Deck ordered up, ordered, uh, made sure everybody understood that we were coming to periscope depth with all the stations. And, at that point he raised the periscope at 150 feet, ordered up, uh, six knots, for the, uh, for the, uh, ship's speed, and we continued up to, uh, 6-0 feet. During that time I was ordering the Chief of the Watch to bring some water on, to slow our ascent. And while he brought water on, I also limited the angle. We started out with a 5-degree up bubble and then we progressively worked it down to about a one-degree up bubble. By the time I got to about 8-0 feet, 7-8 feet, uhm, from 7-8 feet on up, it was, uh, slow ascent to 6-2 feet. We hit 6-2 feet, uh, and we settled out between 6-2, 6-1 feet. Uh, I worked to get the depth of 6-0 feet and they were on the scope doing a search around. I heard, uh, no close contacts, so I continued to hold the ship at 6-0 feet. We sat around 6-0, 6-1 feet for awhile, while, uh, the officer of the deck was on the scope. Uh, and uh, I, I don't know exactly how many sweeps he made or anything like that because he is behind me and I can't see nothing that is going on. We, uh, stayed there for awhile and then the Captain asked the Officer of the Deck to bring up 5-8 feet so the Officer of the Deck ordered me to take the ship up to 5-8 feet. So I brought it up to 5-8 feet or 5-7, and I think at this time the Captain is possibly on the scope. But, I'm, I'm not actually positive on that. Uh, we com..., they completed their searches and everything, and we were to get the ship down deep. The, uh, Officer of the Deck was ordered up, uhm, to do an emergency deep. And we called out "Emergency Deep". At that point, the Chief of the Watch, floods on water, I ordered the planesmen to take a, a uhm, down angle of 5 to 7 degrees and we started down. I start calling off depth as we progressed down. Initially we were going to come to 1-5-0 feet, but then it was ordered all the way to 400 feet depending on the discretion of the Officer of the Deck. Uh, a head full was ordered up and we went down to 400 feet where we leveled off at 400 feet. We knew at this point that we were going to be doing an emergency blow, so that was the aspect to get the ship down quickly to 400 feet. At 400 feet, the, uh, Captain explained to everybody on the 1MC what the ship would be doing in regards to conducting an emergency blow. The Chief of the Watch was on station, uh, and ordered to initiate the blow switches from the, uh, BCP. Uhm, through the Officer of the Deck, uh, directed the emergency blow and told the Chief of the Watch to, uh, pass the word, and they, uh, directed a ten-second emergency blow on the switches. Once the

emergency blow was initiated, I ordered my planesmen to pull, uh, pull rods on both planes and obtain a 20-degree **up bank** along the ship. Which is directed by the, uh, procedures. The, uh, speed was ordered up to, uh, ahead two-thirds, just prior to that. So we were running about 10 to 11 knots going up. Uhm, from 400 feet, it took a little while for the emergency, for the air to initiate the upward progression on the ship. But once we started up, I was calling depth off every 50 feet, from 400 feet up through 200 feet and between 300 and 150 feet we started to accelerate faster. Once we hit 20 degrees, I had the planesmen taking charge to push down on the, uh, bubble to make sure it stayed at 20 or, or below 20 now at this point. The ship hit, 150 feet and at approximately 100 feet and then the Captain was on the 1MC explaining to the fact that at this point with an emergency blow and the angle of the ship, the bow of the ship was now clear of the water and we could pretty much feel that at around 7-0 feet, we knew the bow of the ship was clear of the water. Uh, a short while after that, once the, uh, the, uh, ship was clear of the water, I felt, well we heard a shudder what was off to the port side of the submarine. Uhm, then, as we continued a little further to get the submarine fully out of the water before it settled down, we heard the sound a little further aft. At that point I made sure the planesman were trying to control the ship to keep it on the surface. And the Captain was, uh, directing the Officer of the Deck to get the scopes up because there was obviously some indication that we had hit something, but we didn't know what. Uhm, the scopes came up, I was trying to keep the ship on the surface which didn't seem to be too much of a problem, keeping it up there with all the air in the ballast tanks. Uh, the Planesman were doing there job as far as keeping enough speed was shifted around from, uh, anywhere to head two thirds to stop. Various points. In order to, uh, in order to determine what was going on. The periscopes were raised and at that point the PERIVIS came on from scope number 2. I looked over, uh, over towards the fire control area and the PERIVIS was on I saw that, uh, off the PERIVIS off the view of the scope that there was, uh, a surface boat out there. I didn't know the size or anything. But that it was listing to it's port side. And the, uh, the Captain and them went about, uh, giving directions in order to try and get the submarine over towards the direction of the boat that we, that we saw in the PERIVIS. Uhm, so we were driving the submarine and working the speed to get us over to the direction of that, to the, uh, uh, to the boat. Uhm, the Captain started calling out the fact that there was, uh, life rafts in the water, and also trying to get the radio to get communications up. We had both of the periscopes up at that

time, and then they start raising antennas to get communications. Uhm, so that, in order to let somebody know what was going on. Uh, I was still Diving Officer of the Watch. At this time, realizing that we had something and, the fact that we were going to need to go topside, I was requesting somebody to get up there to relieve me, because I was in charge of also making sure that people got stationed for the rescue assistance. So, it was probably within a few minutes after that, that I got another Diving Officer of the Watch up there, which was, uh, Senior Chief **Prist** and he relieve me as Diving Officer of the Watch and I proceeded to go to middle level and made preparations to get the, the force escape hatch ready for rescue operations. We, uh, proceed down, myself, I proceeded down to, uh, middle level, crews mess area to the fore escape trunk. On the way, I was giving directions to drain and open the lower hatch. So we got on station, uh, **PERSVILLE**, was there. Word also came down by phone, so we drained and opened the lower hatch. At that point I had no idea, know what was continuing on in control or whether, uh, where we were in regards to the other boat or anything like that. Uh, my concern now was to make sure personnel were getting on station to assist with getting personnel topside and then getting whoever was in the water onto the sub. Uh, we rigged up what we call our escape condiments, a, uh, it's uh, big curtain, it absorbs the water and directs a funnel to a certain area. And we rigged that up in case we were, want to open the upper hatch and take a lot of water on. Uh, we had divers in station and we had all the gear broken out within a matter a few minutes and personnel were manning the phones and we were...now at this point at stand-by down in middle level waiting to open the upper hatch. Uh, it was still draining...the upper hatch was still draining, meaning that there was still a lot of water up there. And we couldn't get the, uh, we were still waiting for it to drain before we got word to open the upper hatch. At that point, realizing that, I guess the waves were too rough, coming over top of the boat, they directed the divers, that we had in the crews mess to head to control in order to, uh, lay over the side of the bridge, uh, via the ladder. And if, uh, if it was deemed, or if it was possible for them to do it. So two of our divers went topside, to...went up to upper to control and the other two divers stayed with me in middle level. Uhm, and, at that point, that's where we, uh, stayed, waiting for some kind of word on whether we were going to open the hatch or not. Uh, a short...probably about 30 minutes later, the hatch was still draining, they came down and told us that we were not going to be going up through the port escape trunk, that the waves were too high and breaking over the deck and it was just too hazardous for us to open that up

because we, we'd take up too much water from the forward escape trunk which is low to the water anyhow. So, that's where I stood by until we were directed to continue on with whatever else was necessary. That's, uh, pretty much it, except for the fact that that's where I hung out for the next hour or so, waiting for, uh, some, uh, direction of what we needed to do, but everything else was being taken care of as far as I could tell. From up in control, uh, I did hear that, uh, I'm sure not how long after that because a lot of things were going on quickly, but, uh, that there was some boats topside picking up, uh, personnel in life rafts and stuff like that, and uh, that phonecons were going on, so we were standing by waiting.

MR. SCHEFFER: Uh, thank you very much, Chief. Uh, okay, that was a pretty detailed report. That was great. We'd like to, uh, then turn it over here, uhm, probably I think the best approach here, is to turn it over to some of the, uh....

(UNKNOWN): I just have a couple operational questions.

MR. SCHEFFER: Then, uh, why don't you just wait....

(UNKNOWN): Sure. Alright then.

MR. SCHEFFER: ....until we get questions on the, okay, story here from the, uh, subject matter experts here, from the, uh, okay, Coast Guard, Navy.

(UNKNOWN): Alright.

MR. SCHEFFER: Would you like to start? LT?

LT HEDRICK: Sure. LT Hedrick, SUBPAC. Uhm, Chief you said you came up and took the watch after you had chow, uh, who did the brief or the, uh, uh, periscope depth evolution?

WIT: Well prior, or whenever I took the watch, Mr. Coen relieved as Officer of the Deck, so at that point, the Chief of the Watch and myself had already reviewed the emergency blow procedures, 'cause we knew that that was going to occur. Mr. Coen came on watch, he reviewed them, uh, and like I said, we progressed to wait for them to finish lunch in the wardroom and stuff before we got into angles and dangles. Uhm, we finished with angles and dangles about 400 feet and came up to 1-5-0 feet. At that point, uh, they did their baffle clear and the officer of the deck did the brief, with, uh, with, um, fire control, sonar, ESM radio, and also the control party which is

the diving officer, the watch chief, and the watch planesman in regards to what was going to be happening. As far as going to periscope depth and then pretty much of what we were going to be doing after that.

LT HEDRICK: Okay, did you guys, uh, brief the emergency deep at the same time, or, uh...were...

WIT: No, Sir.

LT HEDRICK: Was that expected?

WIT: It is a normal evolution that we, we conduct, uh, on an infrequent basis, but, it, it occurs every so often in order to expedite the ship getting deep quickly. And we've done that and myself has done it on numerous occasions with either Mr. Coen or numerous other officers of the decks. And um, for the emergency blow, when we do conduct an emergency blow, usually we go to periscope depth and then we progress deep rapidly with an emergency deep procedures in order to get us down to 400 feet and then blow to the surface with minimum timing in between.

LT HEDRICK: Okay. About how many folks were present in control, uh, why the baffle clear was going on and the brief for periscope depth..

WIT: Oh, well our ship's party....

LT HEDRICK: You, you don't have to go through the normal watch standers in addition to..

WIT: In addition to the normal watchstanders, as far as I could tell, probably 15 other people.

LT HEDRICK: About 15 other folks? Okay. Um, during the, uh, um, the brief for periscope depth, was there any discussion, uh of contacts? That you recall?

WIT: No, Sir. Uh, you, uh, I said to Doug, and I, and I have been over it in my head, at no time did I hear or reflect on aspect that there was anything up there. Uh, when they raised the scope, at 150 feet, we proceeded up. I know PERIVIS was on because at about 8-5 or 8-0 feet I looked over to the PERIVIS and this is just habit that I look over there as we are coming when it's on, in order to check to make sure there is no shadows up there because if there is, obviously an emergency deep is gonna, gonna go into affect at that point. And that's, that's

just one of the things that I do. Um, then...there was no extra, you know, I mean, there was no extra, huh, precautions, because there was nothing up there as far as I could tell.

LT HEDRICK: I understand that PERIVIS is the video, periscope video that's on, uh, won't you tell me about that.

(No response to question)

LT HEDRICK: I understand that you focus is on your planesman and your trim and keeping that one foot depth while you are up there PD, and that you said you weren't sure who was on the scope. Do you a...I mean, just looking back, if you had to ball park it, about how long did you think you spent at PD? Either at 6-0 feet, at 5-8 feet, or total...

WIT: Well, I haven't known of any PD trip to go less than five minutes, so, I mean, I know it's been at least a minute or five minutes, so, if it was, it was probably a little bit longer than that, uh, knowing that, if Mr. Coen was on the scope, because he is usually a little bit more diligent than the other ones. Um, in regards to, he's just, he's just more, spends more time running around the scope and making more checks, uh, in regards to that. And then if the Captain got on the scope, so, it would had been, easily at least five or six minutes if not more.

LT HEDRICK: Do you recall any, any reports being made from the officer of the deck or the Captain or anyone on the scope, other than the no close contacts you had already mentioned?

WIT: Uh, no, other than the emergency deep, Sir.

LT HEDRICK: Specifically, I'd like to, uh, did you hear any ESM reports during that period?

WIT: I know ESM was calling out, and I know they contacted ESM to, to determine if there was anything, but, I mean, off the top of my head, I couldn't tell you if I heard anything or even identified with anything coming out over the 27MC.

LT HEDRICK: Okay, that's all I have, thank you, Chief.

LT JOHNSON: Okay, hey, how you doing Chief. Um, how long have you been qualified as a Diving Officer?

WIT: Uh....

LT JOHNSON: I'm sorry, this is LT Johnson, U.S. Coast Guard.

WIT: I've been on the submarine just a little over a year. I've been qualified Diving Officer probably three and a half years on there.

LT JOHNSON: Three and a half years? Okay, how many times have you done this emergency surfacing evolution in your, your career....

WIT: Uh....

LT JOHNSON: ....approximately.

WIT: Uh, myself, on this boat here alone, probably at least four times.

LT JOHNSON: Four times?

WIT: (inaudible)

LT JOHNSON: Was there anything partic...peculiar about this one with the tourist, the VIPs onboard? That abnormal from when you normally do it without them?

WIT: As far as, um, I mean how we did the procedure? Or?

LT JOHNSON: Any...anything, was it more confusing, more taxing....

WIT: Well....

LT JOHNSON: ....was it the same as always? What information....

WIT: Ob....obviously there, you know with more people in control, you know, I mean it just seems like it's more crowded. But....

LT JOHNSON: Right.

WIT: Sitting in a Dive Officer of the Watch stand, that's, that's all behind me.

LT JOHNSON: Sure.

WIT: So, I can't, I can't see any of that, so that doesn't really affect me much. Uh, the, uh, we've done, uh, a few times where we've had dependents cruise onboard and done emergency blows, so in regards to them, it was all, all identical. I mean to. . .[garbled], uh, the only difference is there was a lot more people in the control room.

LT JOHNSON: Were you comfortable during the operation?

WIT: Uh, Yes, Sir.

LT JOHNSON: Okay. Uh, which, which gauge were you using to maintain your depth?

WIT: We have, a, uh, what we call a shallow water depth gauge up on the **SCP** up on the starboard side upper corner.

LT JOHNSON: Uh, huh.

WIT: And that's the one that I identify with when we are working from 1-5-0 feet up to periscope depth and try to maintain depth at that, because the accuracy of the gauge.

LT JOHNSON: Is that an analog or digital?

WIT: It's, uh, it's analog gauge.

LT JOHNSON: Okay.

WIT: Working off, uh, pressure.

LT JOHNSON: Were, uh, while you were the Diving Officer of the Watch, were any of your VIPs ever at the controls? At the planes and helm?

WIT: They were, they, they drove, um, at the, from 400 feet down to approximately 600 feet, uh, during the, uh, lunch hour....

LT JOHNSON: Mmm, um.

WIT: ....whenever we were taking approximately, uh, three-degree angle changes. And we maintained at three degrees or less in order to, uh, prevent....

LT JOHNSON: Right.

WIT: ....Food going all over the place in the wardroom area.

LT JOHNSON: What about during the, uh, the emergency deep, were any of the tourists on the...

WIT: No.

LT JOHNSON: ...of the, **EMBT blow**? Were they on the controls there?

WIT: The, uh, emergency blow, uh, the Chief of the Watch was there with, uh, uh, one of the VIPs. Uhm, and I don't know who it was.

LT JOHNSON: Where they sitting at the, at the Chief of the Watch station? Or were they actually operating the controls?

WIT: There were standing with, they were standing with the Chief of the Watch, uh, they, they, they uh, sit, they had their hands with the Chief of the Watch during the emergency blow.

LT JOHNSON: Did they actually activate it themselves? Or did the Chief of the Watch activate it?

WIT: Not themselves, they did it with the Chief of the Watch.

LT JOHNSON: But did you have anybody on the controls...

WIT: No.

LT JOHNSON: ....on the helm's planes?

WIT: No.

LT JOHNSON: No, those were watchstanders?

WIT: Yes, they was....

LT JOHNSON: Qualified watchstanders?

WIT: Exactly. From the time we, uh, did angles and dangles, which was, prior to one o'clock, um, until, well from there on out, there was nobody else on the plains. I mean it was ship's force. The only time we had any personnel....

LT JOHNSON: Uhm, mmm.

WIT: ....Uh, civilian wise that were on the, uh, sticks, was, uh, during the lunch hour where we did, you know, the minimum depth change at three degrees.

LT JOHNSON: Right. What, uh, what is the experience level of the helmsman and planesman, Chief of the Watch that you were working with during this....

WIT: Chief of the...oh, excuse, me. The Chief of the Watch, he's been onboard the boat for two and a half years, been qualified Chief of the Watch probably, uh, probably about five months. Uhm, the, uh, helms and planesman...the helmsman, he's been there quite a few years. I'm not exactly sure how many. But he's been on the plains the whole time he's been there. So, I would say he's real experienced. The outboard station, he's been there about a year and a half and he's been on there pretty much the whole time.

LT JOHNSON: Okay.

WIT: So, they have at least a minimum of a year on there, or greater than three years.

LT JOHNSON: Right. In the last, in the last five months how long...how many days at sea would you say that you guys probably had?

WIT: Well, we just came off of approximately thirty days underway. Uh, where those guys have been driving as well as myself as Diving Officer of the Watch, where we went on a EASTPAC deployment....

LT JOHNSON: Sure.

WIT: ....So, that was...that was there. Uhm, prior to that we had three months in port and prior to that we were in and out almost the whole year.

LT JOHNSON: Okay. Uhm. Just a few more. How would you characterize the noise level in the control room during the, uh...from the time that you first got to periscope depth and they were doing the search, to the time that you did the **EMBT** blow. What was the noise level like in the control room?

WIT: It was actually pretty quiet.

LT JOHNSON: Quiet? Okay. Uhm. Where you aware of any specific orders for testing the **EMBT** blow system, you know, specifically is there any, uh, command promulgated procedures to ensure safety of the vessel or surface safety or anything like that?

WIT: Well, that's why we come up and do the, uh, the, uh, periscope depth operation to verify that there's nothing up there prior to us conducting an emergency blow, I do know that.

LT JOHNSON: Are there standing orders from the Captain or from someone, that...to note that, or is it just something that you've always done?

WIT: I, I know it's routine for us, and I can't tell you off the top of my head now. I mean, there probably is a standing order for it. But....

LT JOHNSON: Your not sure where?

WIT: Right.

LT JOHNSON: Okay.

WIT: It's just, I just can't remember right now.

LT JOHNSON: Uh, how long...how long did you actual do the **EMBT** blow for?

WIT: It was, uh, directed to have a ten-second emergency blow.

LT JOHNSON: Okay.

WIT: So, it was probably eight to ten seconds.

LT JOHNSON: Okay. Do you...do you...uh, Chief do you happen to know what your rate and angle of ascent was?

WIT: The rate of ascent I couldn't tell you off the top of my head, the angle of ascent was 20 degrees or less.

LT JOHNSON: Twenty degrees or less....

WIT: And we hit a 20 degree bubble and then...a depth prior to hitting the 20 degree I had the planesman trying to push down to hold it at 20 or less.

LT JOHNSON: What about during your emergency deep? The rate...do you know the rate and angle of?

WIT: Uh, the maximum depth...I mean, maximum angle I think I got on that was, uh, around a ten degree to eleven degree down.

LT JOHNSON: Ten or eleven down?

WIT: Right.

LT JOHNSON: And you don't know the rate?

WIT: No, Sir.

LT JOHNSON: Okay. I better hurry through these. Uhm. Did you hear any reports from sonar, given during the...during the ascent...during the **EMBT** blow? Did you hear them pass any contacts?

WIT: Emergency blow? No, Sir. The, uh, the, uh, the blow, the air was going out, so that, that was fairly loud in control. That, that probably made the most noise than anything. And then I probably made just as much noise calling out the depth. 'Cause I make sure I call out the depth pretty loudly....

LT JOHNSON: Right.

WIT: ....so that everybody understands where we're going and how...you know, what depth we are at as we're coming up, so, uhm, as far as sonar putting something out, I, I really wasn't paying attention to that point. I was paying attention to the fact that we were coming up and I was calling off depth to make sure that everybody understood where we were at.

LT JOHNNSON: Okay. The same thing would be for **ESM** then? Do you know when the last time your depth gauges were calibrated? Do the Diving Officers have access to that information?

WIT: There's, there's calibration stickers on those things, so, uhm....

LT JOHNSON: Do you know if your depth gauges....

WIT: I know they were in calibration, but I don't know when they were...when they expired.

LT JOHNSON: I'm, I'm sorry, you said, you...they are in calibration.

WIT: Yes they are. They have calibration stickers on them.

LT JOHNSON: Okay, make sure that I don't have anything else here. Did you ever here the Officer of the Deck comment about his scope going underwater during his search at periscope depth?

WIT: No.

LT JOHNSON: He, never...he never made a comment to your knowledge, that....

WIT: Uh, he, uh, he may....

LT JOHNSON: ....I can't see, or....

WIT: I, I don't. I don't recall him saying anything. I know that, uh, the order depth was 6-0 feet. Uhm, initially when we went up and we were trying to hold that, we went down to 6-2, so that shouldn't have took us under water, with the exception of some wave hits. Uh, usually in order for the scope to be under water we're talking 6-3, 6-4 feet, is usually when it breaks. So, uh, if it, if he was, uh, if there was any indication of that, he would have said it louder, you know, or, or if it was for a long period of time, he would have definitely let me know. But, the, I, I don't think, we...if, if we did get under water, it wasn't for long at all.

LT JOHNSON: Umm. Sonar...I'm, I'm assuming sonar is manned continually when you are submerged, correct.

WIT: Yes, Sir.

LT JOHNSON: Always.

WIT: Always.

LT JOHNSON: Are you aware...did...of a, of a, uh, sound velocity profile being done?

WIT: We have a, uh, we have an indication of the, uh, sound velocity up above the **BCP**. Uh, where I...I mean the **SEP**, where I stand watch at. And I use that as a gauge reference on, uh, telling us how much water we have to bring on or off if we slow the submarine down.

LT JOHNSON: Uhm, mmm.

WIT: Um, we usually set the submarine up to be at neutral point.....

LT JOHNSON: Sure.

WIT: ....Seeing zero at 1-5-0 feet. But if we go deep and we're going slow, then we have to adjust it and we use that, which is the graph up above there, and it also has the different indications of numerous other things too, to tell us on, on the buoyancy of the ship and what we need to do. But I do have one up there.

LT JOHNSON: Sure. Did you...did...were you aware though....where the conversion zone was? At what depth it was?

WIT: Uh, I can't recall off the top of my head. I do know that, uh, as we proceeded to periscope depth that we were going to a lighter side.

LT JOHNSON: Okay. And how...can you....do you any idea during the, uh, I know you mentioned that you...where you had the VIPs and you were changing depth, routinely from 400 to 600 feet with three degree....

WIT: Right.

LT JOHNSON: ....no more bubbles....

WIT: Right, right.

LT JOHNSON: Any idea how much time you might have spent below 400 feet? If we assume 400 feet was the thermal layer that might have prevented some sonar. Would, would that....

WIT: Oh, I will say....

LT JOHNSON: ....have any idea?

WIT: ....I will say that, uh, from the time I took watch from the time we started the angles and dangles above 200 feet, when we went from 200 to 600 feet or so, uh, that, uh, that we didn't go above 400 feet. Uhm, prior to those angles and dangles. So from the time I took the watch at 1120 until we commenced our

angles and dangles and then went up to periscope depth, we didn't, we didn't surpass 400 feet.

LT JOHNSON: Yeah, you were, you were beneath it.

WIT: Right.

LT JOHNSON: Okay. And last question I believe I have, is...what...when you, you talk about, you had you **EMBT** blow brief.

WIT: Yes.

LT JOHNSON: What's, what's discussed during that brief?

WIT: Uh, we break out the procedures with the Chief of the Watch and we go over the actual, uh, what is actually required of us as the ship's, as the ship's control party and what the Officer of the Deck is going to direct us. Uhm, for the Chief of the Watch what his functions are going to be as far as what words he passed and what his job is going to be for the emergency blow. If you did an actual emergency blow, obviously the blow would be longer, but this was a specific emergency blow and was only directed for ten seconds. So we covered Chief of the Watch actions, mine as the Diving Officer of the Watch in regards to the speed or whatever directed speed it's gonna be and what angle that I should direct the planesman to achieve. And then also what their job is going to be.

LT JOHNSON: Uhm, mmm

WIT: As far as putting raise on....

LT JOHNSON: Sure.

WIT: ....and obtaining a 20 degree and then holding it at 20 degrees and getting it off. And then once we got to the surface level....

LT JOHNSON: Right. I lied to you, I do have another question, I'm sorry. I, I know that during the time you are dumping air in the tanks, your approximate...you know, your ten second blow....

WIT: Right.

LT JOHNSON: ....which is going to put maybe 15 to 20 percent air in the tanks, it's very loud throughout the submarine, obviously. But I know that once they secure that blow, does the noise level return to normal while you're waiting for the affect of the, and the ballast,....

WIT: Oh, yeah.

LT JOHNSON: ....the air tank, to start the boat up?....

WIT: Yes.

LT JOHNSON: Did the noise return back down to normal,....

WIT: Right, it was, it was....

LT JOHNSON: ....correct?

WIT: ....it was, it was, uh, the noise level, increased considerably, obviously....

LT JOHNSON: Okay....

WIT: ....and, and as far as hearing what was going on in control,....

LT JOHNSON: Yeah.

WIT: ....it was probably easy to hear,....

LT JOHNSON: Sure.

WIT: ....uh, like I, but, you know, I know,....

LT JOHNSON: Yeah.

WIT: ....and I know, ya know, with me calling off the depth,....

LT JOHNSON: Right.

WIT: ....I know they easily heard me calling off the depth, so....

LT JOHNSON: You're not emitting any other noises into the water then at that point from the submarine?

WIT: No, but, it's...I mean...the only thing that, that would be going into water would be the fact that air, I mean water would be being forced out of the ballast tanks because the air would be....

LT JOHNSON: Right.

WIT: ....expanding in the ballast tanks.

LT JOHNSON: Yeah.

WIT: But, uh, as far as anything else going on the water, no.

LT JOHNSON: Uhm, mmm. It would never get to the point that would be expanding...expelling air from the ballast tanks because we would not have put enough into....

WIT: I don't think at 400 feet.

LT JOHNSON: ....at 400 feet to do that.

WIT: But, uh....

LT JOHNSON: So on the way up, then, uh, sonar, you say sonar's continually listening so after the ten second blow, we've gone to a quiet ship, we've started our ascent, we're above 400 feet, obviously, because, I'm getting my mind going here....

WIT: Right.

LT JOHNSON: ....because we started at 400 and popped, the popped the valves....

WIT: Right, right.

LT JOHNSON: ....so as you're making your approach to surface you bow up, sonar should still be listening, correct?

WIT: Yes.

LT JOHNSON: Okay. Did they... did you ever hear of any reports come from sonar to the CONN regarding any contact or surface ship activity in the area during the ascent?

WIT: Uh, no, I did not.

LT JOHNSON: You heard nothing?

WIT: And, in the...I, I don't...I don't know how long it actually took for us to broach the surface, but, it's..it's...I don't think it's a considerable amount of time with a 20 degree up angle....

LT JOHNSON: Sure.

WIT: ....on the blow. So we would be coming up. The longest time we had, obviously was the initial increase....

LT JOHNSON: Uhm, mmm.

WIT: ....on, the...from 400 feet to....

LT JOHNSON: Right.

WIT: ....300 feet and from that point on we, uh, accelerated up fairly quickly. Uhm, as far as....

LT JOHNSON: Do you know what your speed was when you hit the surface?

WIT: Well, the ordered speed was two thirds.

LT JOHNSON: Two, two thirds?

WIT: So we never increased speed, but, you know....

LT JOHNSON: Right.

WIT: ....the acceleration on the ship coming up, obviously increased, but, I, I couldn't tell you that.

LT JOHNSON: Okay. Thank you, that's all I have.

LCDR SANTOMAURO: LCDR Santomauro from SUBPAC, I'd just like to say that, uh, you're apparently are very well qualified, uh, as Diving Officer of the Watch, uh, having been qualified dive myself in the past, uh, all your answers were right on target. Uh, what really strikes me today is the, uh, obviously concern that the whole...that you, in particular, and possibly the whole crew had, uh, after the collision, uh, by getting right to your search and rescue stations, and uh, the fact that you guys were ready to provide support almost immediately after the collision, which is in direct contrast to what you are hearing in the press out there. So I appreciate hearing that.

WIT: I, I have not listened to the press much. I just know what happened on the ship and I know that, uh, listening to the news and stuff will just put a different spin on what I would want to hear, so. I know what happened, you know, on the boat. At least from my perspective. And I know how the crew performed and all I can say is that I think we did what we had to do.

LCDR SANTOMAURO: Okay. I think all the questions I had were previously covered by the, uh, Coast Guard, so, I don't have any further questions, I just wanted to make that, that statement. Thanks.

LTJG KUSANO: LTJG Ken Kusano, Coast Guard. I just have one question. Uhm, you described that you felt the first bump on the port side and then second one on the aft. Can you just describe a little bit more in detail, what it felt like, you call, you say you were reading off, at about 150, 50, 50 feet increments....

WIT: It was, it was between, well, like I said, I read the depth all the way, up, but, uh, and we accelerated a little bit more. Uhm, from probably just shy of 100 feet up, the Captain was reporting the fact the bow of the ship would be coming out of the water. And, and, because obviously the, the angle on the ship. Uhm, it was probably, I couldn't even recall what actual depth, but I know that we were definitely broached, we were out of the water and, uh, I felt it off to the portside. It wasn't like a metallic or anything, or I could actually hear loud metallic noise. It was the fact that we had...something had hit us or we had hit something, uhm...

LTJG KUSANO: Was it....

WIT: ....along the portside.

LTJG KUSANO: Was it? Was it? You could feel or just a kind of a vibration....

WIT: I couldn't feel much....

LTJG KUSANO: ....or a shock, or....

WIT: ....it was a slight vibration, but noise more than anything else.

LTJG KUSANO: More noise....

WIT: .....uh, off to the portside. And then, then I heard it again as the ship started to settle out, on the surface. I heard it and it felt a little bit aft. But I couldn't tell you where it was at that point. Obviously it was the rudder, from, uh, retrospect and in regards to looking at everything, and, and, uh, the condition of the rudder. So, you know, I know that it was aft there.

LTJG KUSANO: What does, what does a normal emergency blow feel like? I mean...

WIT: Pretty much just like that, with the exception of the, uh,....

LTJG KUSANO: With..without the noise.

WIT: ....the finalized potion of it. Uh, the ship broaches the surface at the large angle that we're at, with the bow coming out of the water. Uhm, and probably a little over a third of the submarine coming out and then the rest of it settling down. Uh, depending on, the uh, extent of the blow, or how long you do the blows, some of the air comes out, you settle down and then come back down to the surface.

LTJG KUSANO: Did you ever feel a third bump or third noise?

WIT: No.

LTJG KUSANO: No.

WIT: If, if, if I did, I don't recall it, or I don't, you know, don't remember it happening. Just the two that I can think of.

LTJG KUSANO: That's all.

CDR CACCIVIO: This is CDR Caccivio from SUBPAC. Okay, Chief real quick, uhm, did the ship...did the submarine roll at all?

WIT: Uh....

CDR CACCIVIO: Did you list to port or starboard during this evolution?

WIT: I don't, I don't, I don't think it listed. I could tell that the submarine....

CDR CACCIVIO: Anything you noticed?

WIT: I could tell that the submarine did in regards to the blow, I mean, we were....

CDR CACCIVIO: I mean in response to the collision. Did you feel that the ship listed at all during that time period?

WIT: No, I couldn't tell.

CDR CACCIVIO: Okay. Did you hear any audible **WLL9 alarms** that you would have detached at that time?

WIT: No.

CDR CACCIVIO: I realize it may be in the background for you.

WIT: No, that...they, yeah, that definitely would be in the background, but I didn't hear nothing from that......

CDR CACCIVIO: Okay.

WIT: I mean, the noise, the noise from broaching and, and, and then the noise off to the portside where, where the, the ship had been, uhm, just seemed to take everybody's focus. Or at least my focus at that point, in regards to....and then trying to be sure that we stayed on the surface was my next, my next regards, once we, uh, heard the noise.

CDR CACCIVIO: Did you, it sounds it to me....it is fair to say that you stood watch routinely with Mr. Coen, or you stood watch with him a fair enough time that you were comfortable as a watchstander? Or were you now way in a rotation with him?

WIT: Yes, uh, I spent the whole, yeah, he, he was my normal rotation for the, uh, previous, uh, approximately 20 some to 30 days underway on EASTPAC in January before we did this evolution on the 9th.

CDR CACCIVIO: Were your, were your watchstanders or Chief of the Watch, your, uh, dive...helmsman, planesman, were they your standard guys, or?

WIT: Uh, Feddeler is usually the guy that if I do angles and dangles, which, with, which we did. He sits the planes. Because he seemed to be the most experienced on so we usually brought him up there for that. Ramirez, he's, he has little

over a year at the outboard station, so, uhm, I haven't stood watch on a formal rotation, with them, you know, we cycle through with them. Uhm, but I hadn't had them for long period times.

CDR CACCIVIO: Okay. But you had stood watch....

WIT: The Chief of the Watch, I had, I had stood watch with him, probably, uh, two of the last three or four weeks of our underway.

CDR CACCIVIO: Okay. Uhm, when you were at periscope depth at 6-0 feet and then again at 5-8, did you look out the **perivis** at all?

WIT: No, I did not. Uh, I looked out at prior to us coming....broaching the surface because, I, I was telling you, I, I always look over there to check and see if there are any shadows and stuff as I go up because you can see easily see as long as it's daylight out, and that is usually when they have the **perivis** up anyhow. Uh, if there's any, uh, shadows out there.

CDR CACCIVIO: So at any time do you remember Mr. Coen saying, uh, Diving Officer I'm taking hits.

WIT: No, I don't recall that.

CDR CACCIVIO: Okay. Did you have a feel for the sea state?

WIT: Um, it didn't seem to be too bad. I mean the, the most, that I had was a one foot depth change that I recall whenever we went up a 5-8 feet, I came up probably to 5-7 feet or somewhere in that range and then came back to 5-8 feet. Uh, we had pretty good control over the submarine, uh, the, uh, angle of the submarine at periscope depth ranged from a zero to a half down, uhm, so it wasn't too bad at all.

CDR CACCIVIO: Okay. Uhm, let's me just make sure I clarify...you...when you took the launch you knew that you were going to be doing an **EMBT** blow that day?

WIT: Yes.

CDR CACCIVIO: Okay. Uhm. When you did your emergency deep, were there any course maneuvers?

WIT: Yes. As we did the, uh, emergency deep, I think we did a, uh, a uh, change to the right.

CDR CACCIVIO: During the emergency deep or after?

WIT: During the emergency deep.

CDR CACCIVIO: Okay.

WIT: But I can't tell you to the full extent, uh, how, how much course change we had to the right. Uh, when we got to 400 feet we leveled out, they increased speed and then they ordered rudder change to the left.

(UNKNOWN): I'm sorry, are you saying increased or decreased speed.

WIT: Decreased speed to two thirds.

CDR CACCIVIO: Okay, when you at first scoped up, uh, when either, between the CO and the, uh, the Officer of the Deck, did you, did you hear any indications of positively looking down the bearings to visualize contacts? I realize these are things that, that you may have not been privy to.

WIT: Yeah, uh.

CDR CACCIVIO: But they may have been background things that you would have been paying attention to.

WIT: I don't...it's like...it's like background....

CDR CACCIVIO: Right.

WIT: ....and I, wasn't paying....you know I key in on the concept that there is no close contacts and then at that point I'm trying to make sure that we stay at depth. Um, if we're there for a long periods of time, obviously that stuff filters in, but I don't, I don't remember, that, uh, that there was any, uh, as far as their sweeps go in regards to anything, or even where they were looking at.

CDR CACCIVIO: Okay. Just one last more quest....one last question. During emergency blow, you didn't hear any....did you hear any indication from sonar of close aboard contact?

WIT: No, I did not.

CDR CACCIVIO: Okay. That's all I have.

CAPT KYLE: Captain Kyle from COMSUBPAC. Chief I may be duplicating some questions, I just want to make sure, they are, we got them. At periscope depth, uh, at uh, pre emergency deep periscope depth, do you remember anything on the early warning receiver? Any?

WITNES: No, I don't. Uhm...

CAPT KYLE: Was it, was it active? Could you hear it? Was it on?

WIT: I know, I know, we had _____ man.

CAPT KYLE: _____ man, but you don't remember the beehive going off behind you there? All the signals?

WIT: You know, to tell you the truth, if it was, it was background to me and, and it was being filtered out, because I was trying...Usually on something like this, you know, we're up there periscope depth and I'm trying to hold the depth.

CAPT KYLE: Right.

WIT: And, uhm, that was, that was, extremely important here, obviously prior to us going....and we had the VIPs onboard, you know, and we're settling out, and I'm trying to make sure that we're up there.

CAPT KYLE: Got it.

WIT: ...because supposedly, you know, we had the 1-5-0 trim and we brought on water and, it had been since the morning before we had come up to periscope depth, at least on my watch. So, this was the first time, and I was bringing on water to keep us there and figuring out if we needed to take any off to hold us there because I had no idea on how long we were going to be there to tell you the truth.

CAPT KYLE: Okay. Uh, Second, second question, no, I think this is the last question. Uh, when did you come on watch?

WIT: I came on watch about 1120. Right after chow.

CAPT KYLE: You...were you the, uh, were you the maneuvering watch diving officer? Did you dive the boat?

WIT: No, I did not. I, uh, I was a uh, line handling supervisor topside, I came down and secured the rig and then spent some time with the VIPs in the crew's mess before going to the torpedo room.

CAPT KYLE: That's all.

MR. ROTH-ROFFY: Hi Chief, my name is Tom Roth-Roffy and I would like to ask you just a couple of follow on questions. I'm not a submariner, so, hope you'll bear me and understand my questions may not be phrased properly in the right terms, but I will try my best. Uhm, during the VIP tour evolution, were you following some sort of agenda as far as the, the events that were going to occur during the underway period?

WIT: There, there obviously was an agenda, as far as the Diving Officer of the Watch, uhm, we knew that at some point we were going to do angles and dangles for the visitors. Which we did. Uh, that was prior to one o'clock, or 1300, and shortly after that. Um, and I knew that the emergency blows, you know, were going to occur, if we could. And that's why we briefed that prior, you know, right after relieving the watch. As far as the rest of the evolutions, the uh, there was, uh, at least two officers that were, uh, specified to assist the VIPs and touring them through the ship and what they were doing. You know, I knew that some of the agenda had been the fact, that, uh, you know, they'd have a special lunch, and that they would be taken to the torpedo room, you know and given tours through the front fore part of the ship as well as, uh, shooting water **slugs** from the torpedo tubes and things like that. I knew that was occurring. But I didn't, I didn't, you know, I didn't have, have a specific agenda out for myself as far as what we were doing.

MR. ROTH-ROFFY: Yea Chief, just for the record could you explain what is mean by the term angles and dangles.

WIT: It's, uh, normally, a submarine whenever we are operating underwater, we try to, uh, maintain a minimum angle on the ship. Uh, close to zero whenever we're operating and we're running in specific areas. What we do is take large angles and dangles on the ship, either after we leave port, or during different evolutions. That means, where the ship takes, uh, upwards and downwards angles on the submarine, ten degrees, up to thirty

degrees or whatever the case, whatever is directed, uh, in order to do major depths changes. Uh, large depth changes from, uh, 200 feet, uh, down and back up, uh, this is to verify, one, that the ship is in sea worthy condition, and everything is stowed, in case we actually had to take those angles and dangles in case of an emergency, i.e., flooding or something like that, or whatever the case may be. But it is large angles on the submarine in order to change depth progressively.

MR. ROTH-ROFFY: Do you do that...how often do you folks do angles and dangles, for just practice helmsman training?

WIT: Uhm, I would say that usually we do angles and dangles every time we go sea, uh within the first 24 to 48 hours going to sea to verify that the ship is stowed. And then, uh, we usually do angles and dangles on, on a uh, I would say it's routine for us in order to train our helms- and planesman. Uh, any time we get a new, uh member onboard the boat that qualified the watch, that's one of his, uh, prereqs in order to drive the submarine at the various angles. As well as rudder angles and stuff like that. So, I, I would say, in the, uh, period that we, we would go out to sea for a thirty day period, we would probably do it at least, uh, ten times, maybe seven times, somewhere in there.

MR. ROTH-ROFFY: Now was this a procedure that had a written standard? Operating, a way of doing it.

WIT: As far as operating….

MR. ROTH-ROFFY: How, how they actually performed this evolution, is there a procedure in the standing orders?

WIT: There's a standing order to tell us on the amount of angle that the ship's allowed to take and conducting angles with depth obviously is one. And also whenever you are changing depth. For us, it's 5 degrees for every 100 feet unless directed to aggressively drive the submarine by the Officer of the Deck depending on the situation.

MR. ROTH-ROFFY: And, uh, periscope depth, uhm, it's, uhm, what does that mean? And how is that depth determined or what factors go into it determining what….

WIT: The, uh, periscope depth is, is, uh, generated, obviously by getting the sub, submarine up towards the surface but not broaching the surface. So it's anywhere from below 5-0 feet for

our submarine. At 5-0 feet, the top of our sail starts to broach the surface. Uh, this is designed…6-0 feet is normally where we come to, and then depending on how much periscope or what antennas we want to have out, we usually come to a shallower depth. It can range from anywhere 5-5 feet on the indications down to 6-0 feet. And, uh, sometimes we go down to 6-2 feet and hold out there, if, if it's really glassy out. And that's in order to keep the, uh, scope at a certain, certain level above the water.

MR. ROTH-ROFFY: Okay, so 5-0 feet is a normal, you could maintain 50 feet out….

WIT: Well, 50 feet is really hard because the, the, the surface area on a sail starts to suck the submarine up. So if we come up to 5-5 feet, that's generally where the max that we want to offer, at least that's where I feel comfortable with operating at a periscope depth. Five-five, even 5-4 feet depending on the sea state, uhm, and when we do those depths, that's when we have the snorkel mast up and we're taking air into the ship from outside.

MR. ROTH-ROFFY: And what, you say, feel comfortable with…what would happen if you exceed the, ….

WIT: Well, a ship would broach, if, if….

MR. ROTH-ROFFY: And what does that mean? What, what affect….

WIT: ….that means, uh….

MR. ROTH-ROFFY: ….would that have on the operation?

WIT: ….the top of the sail would start coming out of the water, uhm, and then, the surface, the waves would suck us up to the surface. And then, once you are sucked to the surface it takes an extensive period of time to drive the submarine down unless you, uh, kick up speed and push it down.

MR. ROTH-ROFFY: What, what do you mean by extensive period of time?

WIT: Uh, if you are at a 1/3 bell, you would have to bring on water and you're…I mean, depending on the sea state, I mean, I've been there where I've fought the surface suction for five minutes or more trying to get back underwater. When we dive the submarine, it takes a while for the submarine to vent all of

it’s air off to even go underwater. So, I mean, sometimes you’re, you’re, you’re pushing the submarine down with a 2/3 bell and it’s taking five to seven minutes or longer.

MR. ROTH-ROFFY: So your talking about a five to seven minute delay if you broach?

WIT: Yes.

(UNKNOWN): Five to seven minutes of an exposure.

WIT: Exposure, when the subs out of the water.

MR. ROTH-ROFFY: Okay, sail…

(Interviewers speak simultaneously)

(UKNOWN): Even, even could be if it’s heavy sea state, suck the whole boat (background talking) your looking at the whole deck. It’s this wave action that causes the low pressure area above the ship that just kinda sucks it up to the surface, and the closer you are, the more the suction factor is.

MR. ROTH-ROFFY: Okay. To clarify, if you are sucked up and you are exposed then it’s five minutes to get back down again?

WIT: At least. I mean…

MR. ROTH-ROFFY: At most...

(UNKNOWN): No.

WIT: Uhm, uhm, you can get down quicker, by, by bringing on extensive amounts of water but you are not just going to go back down and settle at 6-0 feet. Usually you will go down below that, then, then have to fight your way back up. It’s all, all a balancing act on how much water you have to bring on and how much speed you got on the submarine.

MR. ROTH-ROFFY: But it’s not like an hour, or two hours to….

WIT: Oh, no….

MR. ROTH-ROFFY: ….get you back down again, its.

WIT: Oh, no,

MR. ROTH-ROFFY: ….five or ten minutes probably….

WIT: Right, right.

MR. ROTH-ROFFY: Okay. And, uh, when, the…I don't know, was it the Officer of the Deck ordered the emergency deep, uh, order?

WIT: Yes, Sir.

MR. ROTH-ROFFY: Uhm, that descent, how long does that take to go from wherever you are….5-8 to 400 feet. Roughly estimate.

WIT: Probably four minutes. I, you know I, I've never actually sat and timed it. All that I know is that we're, we're pushing it to go down quick. Uhm, we do go down quick depending on the angle that we go at, and we had a ten-degree angle, so, we went down fairly quick.

MR. ROTH-ROFFY: Can you go faster than 10 degrees?

WIT: Can you go more than 10 degrees?

MR. ROTH-ROFFY: Yes, yes.

WIT: Yes, but that's once you…

MR. ROTH-ROFFY: What would be the maximum?

WIT: Uh, that, that…400 feet, Sir, your talking probably 15 degrees, or something to that affect. Depending on how fast the Officer of the Deck wants to get down there. Uh, but, for 10 degrees, is, is actually a pretty good angle.

MR. ROTH-ROFFY: Is that about normal for an emergency deep procedure?

WIT: The procedure calls for an emergency deep for you to go down 1-5-0 feet unless you are directed to go deeper. And you initially start out with a five-degree to a seven-degree down angle. So, we were directed to go deeper, so that's why we went..

MR. ROTH-ROFFY: Why, why a 5-7?

WIT: 5-7 is to keep the, uh, screw and the rudder from coming out of the water. Whenever you are up at 6-0 and 5-5 feet, if you take too much of an angle, then, the, huh, the nose of the

ship…submarine goes down, but the butt of the submarine comes up out of the water, and then, once that happens, the screw comes out and, and you lose your speed too.

MR. ROTH-ROFFY: If the screw comes out, do you risk damage to the screw or the engine or to any part of the submarine?

WIT: Not, not if it's…not long. And it's usually not long anyhow.

CAPT KYLE: There's a deep procedure designed to get the boat down in case of imminent collision or something like that, so you obviously don't want to break or the ship close to the surface. And the main driver to get back down is propulsion. So if you had your screw out of the water, you've lost all of your propulsion.

MR. ROTH-ROFFY: Thank you Captain Kyle for that. Uhm, and after you reached the, uhm, prescribed depth of 400 feet, uh, how long were you at that depth?

WIT: I would say…guessing I would say, about 4 to 5 minutes at the most. Uhm, I don't think it even took that long because we just had _____ people on station and he, uh, made sure that everybody was ready to take angle, uh, over the 1MC, let them know that we were getting ready to do the emergency blow. And then look up for the Officer of the Deck to direct the emergency blow to occur, a ten-second blow. So that wasn't long at all. Uhm, we did a, uh, it was long enough for, to order a rudder change to the left and slow the bell. So, so it was about 4 to 5 minutes.

MR. ROTH-ROFFY: How much of a rudder change or course change to the left?

WIT: Uh, we were coming from the right, we were supposed to be I think, coming over to 3-2-0 or somewhere in that range, uhm, with a 15 degree left rudder. And, when the emergency blow initiated, once he initiated the blow, the rudder was ordered to amidship as directed by the procedures and, uh, the speed prior to that was decreased to 2/3 power once we got going to 400 feet.

MR. ROTH-ROFFY: So, you went 400 feet for…you said about 4 minutes approximately, is that typically the amount of time that you spend, uh, before, uh, commencing the emergency blow?

WIT: Uhm, yeah, I would say in this case. It's . . .I mean we go down, we get everything set up. . . which we are going quickly to get there anyhow. I mean, four minutes doesn't seem long. I mean, at least it didn't seem long to me. You know, I'm guessing four minutes, but, uh, we were there long enough to get people set up and go, you know, and blow. Because, the, the, the initial, uh, uh, reflection on the ship is to get down there, level out and then blow. And, that's what we were doing. So that we can get down….

MR. ROTH-ROFFY: When you say getting people set up, what does that…what does that mean?

WIT: Uh, I mean, in this case here, the Chief of the Watch was positioning himself, with the uh, the uh, VIP to do the blow. Uh, the Captain was making the discussion on the 1MC what they can expect and we were doing the rudder change and that was it. I mean, you know, maintaining, uh, 400 feet, doing rudder change. And, uh, that's all it takes, is, I mean, if, if we wanted to, I mean, once we leveled out, and did the rudder change we could blow rather quickly too.

MR. ROTH-ROFFY: Regarding the length of the blow, is…you say it was a 10-second blow, but it could have been longer?

WIT: Yes.

MR. ROTH-ROFFY: Why was 10 seconds selected and, and what would be the effect of a longer blow?

WIT: Affect of a longer blow would actually be more going to ballast tanks and, uh, a lot, I mean, uh, uh, a lot larger accelerated ascent to the surface. Uhm, 10 seconds, that's just normally what we do for, a, uh, test of the emergency blow system. That's, uh, enough to let air go to the ballast tank, give us, uh, strong positive buoyancy to the surface by putting enough air out there and getting us toward…in the direction to the surface. And then once we achieve the 20-degree up angle we are moving up pretty quickly.

MR. ROTH-ROFFY: Can you think of any, uh, circumstances in which you would exceed a 10-second blow?

WIT: If we had flood and casualty.

MR. ROTH-ROFFY: Actual emergency. But for drilling purposes it would always be…

WIT: Uh….

MR. ROTH-ROFFY: 10 seconds?

WIT: If, we…for drilling purposes sometimes we don't even, uh, you know, it depends. If we wanna actually, you know, go to the surface, sometimes we simulate the blow for drills. You know, that way we don't actually broach the surface, because in a drill situation we may not want to go to the surface all the way. So, uh, the 10-second blow is just, uh, is something specified that he sets up, in, in an indirect. Sometimes we do only a 4-second blow in order to test the emergency blow system.

MR. ROTH-ROFFY: And that would give you a much gentler….

WIT: Uh, it sure can.

MR. ROTH-ROFFY: ….ascent to the surface.

WIT: Aw yes.

(UNKNOWN): What's the impact, Chief, of a long blow in terms of air bank pressure and so forth? What happens?

WIT: Uhm, we're utilizing four different air banks in order to, to, to blow up all the water from these ballast tanks. Uhm, ten second normal blow usually dumps about 1000 pounds or, or 1200 pounds out of each one of the air banks. And our air banks are kept at 4500 pounds. By doing a longer blow, obviously, we would dump all our air out of our air banks, and we would end up charging for almost a day to get out air banks back up in order to operate at our, at our normal operating depth. Uh, there's specific guidelines as far as what our air banks have to be at in order to maintain and operate certain depths under the water. And, uh, if they're not at those levels then we can't operate at those depths. And that's specifically there in case we have flood and casualty so we can get to the surface. So, a ten second blow will be based on making sure that we don't take too much air out of the ballast tanks would be one.

MR. ROTH-ROFFY: And would impact your ability to operate subsequent to that.

WIT: Yes, if we, if we tried to go back down before we can exceed a certain depth, we would have to charge all our air banks. In order to charge air banks, most of the time, if we

had to do long periods of time, we have to stay either at periscope depth or on the surface in order to suck air into the ship in order to displace it into our banks.

MR. ROTH-ROFFY: I think that's about all I have for you right now. Thanks Chief.

(UNKNOWN): Just a couple to clarify…

(UKNOWN): You have a couple, okay..Excuse me, Jim? Uh, Yeah.

MR. SHEFFER: Okay Jim Scheffer here Chief. Uhm, yeah, you said you came up to about, uh, 60 feet, okay, you were holding at that periscope depth. How much of the periscope is out of the water at 60 feet?

WIT: I would say approximately, it depends on, how much depth…how the waves are, about anywhere from eight to ten feet.

MR. SCHEFFER: And, with the, uh, okay, waves that day, did you have any idea of the weather of the waves that day? Would that have been an appropriate amount? Of the periscope?

WIT: Well…we were holding fairly well depth, so I would say that was…and we even came up to 5-8 and, and you know, 5…ordered depth to come up to 5-8 feet for a little higher look, and we came up to 5-8 and 5-7 feet and held it there for awhile, Sir.

MR. SCHEFFER: Okay, since, I, uh, you know, since I only looked through the periscope here at the, okay, pier, uh, you know, with the type of seas you had and you are up that high with the periscope, you know, about how far can you see? Do you have any idea?

WIT: Uh….

MR. SCHEFFER: I mean don't guess.

WIT: I would be guessing, I can't even.

MR. SCHEFFER: Okay, Chief. Thank you very much. Okay, that's all I have. Bill. Hold on a second here. Did you…what point did you want to correct the technical issue here?

(UNKNOWN): Let's do it right now.

MR. SCHEFFER: Okay.

(UNKNOWN): Uh, I think, what…Chief you correct me if I am wrong, but I think your height of volume may be thinking of the number one scope. The number one scope has about seven one feet….

WIT: Right.

(UNKNOWN): ….so the sixty feet would give you about 8 feet of optic, 8 to 9 feet of optics out of the water. So, the number two scope, has we…I think we determined about 64.5 yesterday, so, at 60 feet you get roughly three or four feet of optics. So, three to four feet of optic eye.

MR. SCHEFFER: Okay, at, uh, okay 60 feet…

(UNKNOWN): At 62, 24 inches of optics.

(UNKNOWN): Okay.

(UNKNOWN): At 60 feet, if the scope is, is roughly, the lens 24 inches above the water.

LT HEDRICK: We, we can verify that, after this. This is LT Hedrick. We can verify that and provide that to the Board after this. That's a technical detail that we can get from onboard location.

MR. SCHEFFER: Thank, you very much. 24 inches?

UNKNOWN: Right.

UNKNOWN: And that's against the flat sea….

MR. SCHEFFER: Okay, flat sea, calm sea….

UNKNOWN: Yea, glassy sea.

MR. WOODY: Chief, hi, uh, my name is Bill Woody and, uh, I have a couple of questions that I picked up as we went along. Uh, do you remember what the sea state was? Do you have any familiarity with what it was, and how it affected your, your, your depth keeping.

WIT: I can't recall off the top of the head…my head, what the, uh, sea state was, uhm, I know that we were on the surface that we were taking, uh, some waves onto the deck, preventing the

hatch from draining. But, uhm, as far as maintaining depth, it, uh, we had, we had six knots on, uhm, we had the ship pretty well settled out, so it really didn't affect us much, maybe one foot up and down at the most. It was actually, it was actually, fairly calm for us in regards to what I'm usually expecting up in the, uh, rough weather.

MR. WOODY: And, uh, was it, uh, did you incur any more difficulty when you got up to a lesser depth, like 58 feet? Was there any change in the two depths?

WIT: Uhm, no, like I said, we went up to a 5-8 feet, I probably went up to a 5-7 feet and then pushed it back down, uh, we sat around at that depth. Uhm, the planesman had to really get control over the depth. Uhm, and, all I had to do was tell them to push a little bit or pull a little bit to keep us in that area. Uh, I think we may have brought just a little bit of water on. We actually brought water on the way up to make us, you know, fairly neutral at 5-0 feet, I mean, 6-0 feet and it, and we did a pretty good job at that.

MR. WOODY: I mean, you did mention that you brought some water on to get the ship to go down when you probably started down.

WIT: Yeah. When we do the emergency deep, the Chief of the Watch, uh, passes the word and then he, he floods water on to about 8-0 feet. Uhm, so…

MR. WOODY: Could you give us some idea of the quantity of water that might be taken on.

WITNES: Probably about five to seven thousand pounds at the most.

MR. WOODY: Is this pumped off on the way down?

WIT: No. No, we are up in speed, uh, if we level out and we decrease speed, then I'll pump it off.

MR. WOODY: I see. As long…I see. You did mention a term here, outboard station, if you could clarify that for the record.

WIT: Yes, the stern planes, controls the, uh, planes in the aft end of the submarine.

MR. WOODY: Okay, and what does "stern planes" mean, mean to your job?

WIT: The stern planesman controls the stern planes that are located aft by the rudder, and they have, uh, a large surface area that affects the, uh, upward and downward angle on the submarine.

MR. WOODY: It is true to the fact that he keeps the vert of the angle that you want?

WIT: Yeah, he, he has a large control over the angle of the submarine.

MR. WOODY: Would you explain that. Who keeps track of the, uh, of the, uh, angle, and how keeps track of the aft….

WIT: I do.

MR. WOODY: I, I know you're the oversight.

WIT: Right, right. The stern's planes, he's, he's monitoring the bubble, uh, which is the angle on the ship as well as watching the depth. He can….at high speeds, uh, of operations he normally controls the depth and the bubble. Uh, at lesser speeds, by controlling the bubble, he assists the, uh, the, uh, inboard station which controls the bow plains in maintaining accurate depth.

MR. WOODY: I see. Now you mention that when the, uh, order for the, uh, the emergency blow was given, the rudder was put to, rudder amidship, rudder amidships. Did you settle on a heading, was a heading ordered, or do you recall what the heading was?

WIT: When you order a rudder shift, amidships, at that point then, the rudder just goes amidships and then wherever the submarine settles out is where we end up.

MR. WOODY: Okay, and what did you settle out as.

WIT: I guess it was close around _____ or somewhere in that area.

MR. WOODY: Approximately _____

WIT: Approximately.

MR. WOODY: When you heard the first noise and that was on the port side, do you recall what the angle of the boat was? What depth you were?

WIT: Uhm, the submarine was, uh, the front, the front end of the submarine was definitely out of the water, uh, the depth indicators, they would come up to indicate probably, I, I would say 6-0 feet or 6-5 or maybe even less than that. Uh, once, once that happened, I know that the, the ship had….shortly after that started to drop forward, you know, the front of the submarine drops and, uh, settles out on the surface, with the back end coming up to meet it.

MR. WOODY: Was your angle so close at 23…..

WIT: Oh, no. At that point we, we had come off, we were coming off on the angle. Once we broached the surface, uh, I would say the angle was probably anywhere from 15 or somewhere in that area, and then it dropped of considerably as we start the broach.

MR. WOODY: To understand…and a broach…and a bow broach is at about a 15-degree angle.

WIT: About a 15, 17-degree angle.

MR. WOODY: And then what kind of angle was it before it hit, was that about what, if you can recall.

WIT: Initially?

MR. WOODY: At the noise.

WIT: We got it up at the time….at the noise?

MR. WOODY: At the noise, right. See, you…I think what I'm trying just to keep, uh, to make sure we are synchronized, you said it came through, the boat came out of the water….

WIT: Right.

MR. WOODY: Uh, around 15-degree bubble?

WIT: Uh, we were out of the water about with a 15 to 17 degree bubble.

MR. WOODY: 15, 17

WIT: ….and then a drop off. So the noise had to occur around that angle.

MR. WOODY: Around that angle. Okay. Excuse me if I take just a minute, 'cause many of the questions were, uhm, answered by different people here.

MR. SCHEFFER: You want to go back and correct those [garbled] _____ you [garbled]_____.

UNKNOWN: Yeah, that's, that is, uh, that's actually was, uh, 4, 4 feet, 4.7 feet.

UNKNOWN: We, we got a data sheet over here.

UNKNOWN: No. turn the mike in your direction, so it's picked up, so the recorder.

LCDR Santomoura: LCDR Santomoura from SUBPAC, I'm reading from the 688 class SS [garbled]_____ on the number 2 scope to the optical center is 64 feet 7 inches.

UNKNOWN: That's from the keel?

LCDR SANTAMOURA: From the keel. And so…

UNKNOWN: Correct 60 feet….

LCDR SANTAOURA: So, at 60 feet you're going to have 4.7 feet.

UNKOWN: Out of the water.

UNKNOWN: Well, I'm glad I'm not totally unqualified….

UNKNOWN: Yeah….

UNKNOWN: Yeah, 'cause that's what I thought it was.

UNKNOWN: On a glass sea. Yeah.

MR. WOODY: And, and you basically **converged your zone from** 100 feet…

WIT: Say it again?

MR.WOODY: You said something about a zone, temperature grading at something and a quarter feet?

WIT: Uhm, that's, I think that's what was brought up, I, I didn't…..

(Simultaneous speaking)

WIT: Right. I think that's what they said over there.

UNKNOWN: I think you might want to clarify that. We're not talking conversion zone, we talking layer depth.

MR. WOODY: Layer depth, right. I used the wrong term.

WIT: Right, that's what, uh, that's what was brought to my attention.

UNKNOWN: Now, what were you, could identify, uh with, the vessel was on the surface, uhm, 4 or 5 minutes, making the sweeps more longer…

WIT: At periscope depth.

UNKNOWN: And then there you say there was about a 4 minute period when you went, you started down, you proceed, at your estimate…estimate, about 4 minutes, you claim about 4 minutes.

WIT: That's, that's my estimate. I don't….

UNKNOWN: Yes, Sir, right….

WIT: You know, I can't recall off the top of my head exactly how much time was spent going down and, and sitting at 400 feet.

UNKNOWN: Uh, uhm.

WIT: I just know, the, uh, the sequence of, you know, what people were doing, you know, in regards to how much time it took them to do it. I can't actually be specific about it.

UNKNOWN: And you, uh, I think you submitted that, uh, those other 5 to 7 minutes, uh, while you're at 4 feet, roughly, now...how many minutes did it take to come up. I realize this is all estimated.

WIT: I, I, I couldn't guess on that because it was…the initial, uhm, upward grating, it took a little while to get while we were at 400 feet to blow, took a little while to take affect, and once it took affect, then we pulled the 20 degree up angle, we accelerated quickly, so, so it was just a matter of minutes.

UNKNOWN: A matter of minutes.

WIT: At the most, yeah. Two or three minutes, uh….

UNKNOWN: Less than 5 minutes.

WIT: Oh, yeah.

UNKNOWN: Less than three perhaps.

WIT: Awwww..

UNKNOWN: Okay, I won't go put words into your mouth.

MR. SCHEFFER: Okay, Jim Scheffer here, I'm just going to pass around if there's anymore short clean up questions.

UNKNOWN: Uh, I have one.

MR. SCHEFFER: Go ahead.

UNKNOWN: Chief, uh, there's two periscopes on the submarine. What, what would determine when you would use one scope or the other? Why was the shorter scope used rather than the longer scope during the sweep?

WIT: Number 2 scope is our, uh, general-purpose scope that we utilize for, uh, all the operations that we do. It supplies us with PERIVIS, and it also has, uh, uh a multi-purpose functioning with it, in regard to antennas and stuff for, uh, for radio and **ESF**. And that's why the, uh, scope is used whenever we proceed to periscope depth and for periscope depth operations. Number 2 scope obviously sticks out further, and we use that for, uh, different, uh, types of evolutions, as far as, uhm, what we call attack and approach on the surface.

UKNOWN: Which scope?

WIT: The number 1, I'm sorry.

UKNOWN: Is it possible to raise both scopes simultaneously?

WIT: Uh, on the periscope depth?

UNKNOWN: Correct. Would there by any reason why you could not raise both scopes and look through both of them simultaneously?

WIT: No.

UNKNOWN: There's no physical reason, but it wouldn't be prudent, if you were to have damage to one scope, you now have damage to both scopes, and now the submarine, can't…has difficulty getting to the surface with being able to see. The other thing with the number scope, the, uh, another primary reason for going to periscope depth on the number 2 scope is because the ESM sensors are on top of the optic, so they break the water first. So if here is a close aboard radar contact, then the ESM operator would be the first indicator of an adverse situation even before the Officer of the Deck would be able to see with the optics. Technically we are talking a matter of inches here, but, that portion of the antenna breaks the water surface first. That's what that early warning receiver is that Captain Kyle referred to, so the Officer of the Deck has an audible indication also if there is some major problem before he may see it.

UNKNOWN: Okay, thank you for that.

LT JOHNSON: Chief, LT Johnson with the Coast Guard here. I just have a couple of real quick ones. What was uh, from your understanding, uh, what was the whole purpose of this EMT blow? Why, why was it scheduled maintenance? Routine? Why, why were you doing it?

WIT: Uhm, I know, uh, part of it was the demonstration aspect, I'm not sure if it was for scheduled maintenance or not. Uh, that, that would have, that would fall under A division's maintenance….

LT JOHNSON: Sure

WIT: ….and I, I don't know if, if it was for them also.

LT JOHNSON: Okay. Uhm, you, you commented earlier, that you, you, as the Diving Officer, you were told to go to periscope depth and you held the ship at….between 60 and 61 feet for the OOD, LT Coen to do his searches, and held it there for, quite, I think your comment was you held it there for awhile….

WIT: Right

LT JOHNSON: ….for him to do his searches. Uhm, and then the CO asked you to come up to 58 feet.

WIT: The CO directed the Officer of the Deck to bring the submarine to 5-8 feet.

LT JOHNSON: Okay.

WIT: The Officer of the Deck is….if the CO gives me a direct order, then he takes over, he was directing his comments to the Officer of the Deck and the Officer of the Deck would direct me on what I needed to do.

LT JOHNSON: Sure.

WIT: And he ordered me up to 5-8 feet, uh, for a higher look.

LT JOHNSON: Sure. And then later on, that you commented that, uh, we're talking about the scope height, and there seemed to be a thing there. That you, that you, you have, you can do sweeps of the area at 62 feet if the seas are glassy.

WIT: Exactly.

LT JOHNSON: And you did your. . .the Officer of the Deck ordered you to go to 60, 61 feet.

WIT: Sixty, usually when it comes to periscope….

LT JOHNSON: ….was the sea glassy?

WIT: ….when we come to periscope depth, uh, the initial depth is, uh, 60 feet.

LT JOHNSON: Would you, would you characterize the seas as being glassy, that day?

WIT: I couldn't…I don't think so. Uhm, not from what it looked like when we were on the, the surface itself. Uh, there was a sea state, the waves, there were some waves there. Uhm, normal operations, 6-0 feet, unless it's a really extreme sea state.

LT JOHNSON: Sure.

WIT. Uhm, as we progress up, uh, the, uh, the depth is called off…

LT JOHNSON: Yeah.

WIT: ….from 8-0 feet up to 6-0 every two feet.

LT JOHNSON: Right.

WIT: ….if he needs me to stop prior to that, or level….

LT JOHSON: Sure.

WIT: ….out at a certain depth, he would tell me that.

LT JOHNSON: Right.

WTNESS: So, 6-0 feet was ordered, that's what we came up to….

LT JOHNSON: Yeah.

WIT: ….and settled out between….

LT JOHNSON: Right.

WIT: 6-0, 6-1, uh, finally level out 6-0 feet while they were conducting their searches before

LT JOHNSON: Did you, did I write this down right. That you, were, uhm, that you were talking about, you went down after the collision and stood by the forward trunk escape hatch to send away the R&A team to get ready to assist people in the water.

WIT: That's, that's were I was at.

LT JOHNSON: And you, and you started to drain, and you drained for approximately a half-hour and you, you were continuing to drain water.

WIT: Yes.

LT JOHNSON: And I'm not that, all that familiar with this procedure….

WIT: It usually takes about 20, 15 to 20 minutes to drain that upper trunk…

LT JOHNSON: I'm not, I'm not, that familiar…..

WIT: It's not, it's not a fast evolution.

LT JOHNSON: Yeah. This class of submarine, but, what kind of seas would it take to continue putting water in that? How tall do the seas have to be to continue filling that trunk up to make…you said, you drained for half an hour….

WIT: Well….

LT JOHNSON: ….then made the determination….

WIT: You've got, you've got a free flow, a large free flood area up around there, ….

LT JOHNSON: Uh, huh.

WIT: So, if, if you, if you take a wave over the deck anywhere, 5 foot or, or, or 7 foot just enough to crash over the deck, then it's going to put, continuously put water down in that free flood area, prevent you from getting a drain hatch. That's why the, uh….

LT JOHNSON: So 5 feet, 5-foot waves would be enough?

WIT: Yeah, well probably, in that range or slightly above it. But, it…that's why we make the con. . ., if, uh, if directed we open the upper hatch which, you know, we did get directed to do, but we opened the upper hatch, and, and, and it would go with the condom and then drain down. It's a, it's a….

LT JOHNSON: But you answered my question. You're, you're assuming that approximately 5 foot seas, 5 foot waves breaking would, would make that draining not take place.

WIT: Yeah, depending on the…

LT JOHNSON: With, with that in mind, with the periscope with you at 61 feet with the periscope, how…do you have any idea…do you have any idea, how…does that scope even….

WIT: It depends on the, it depends….

LT JOHNSON: ….clear the water.

WIT: ….on the, it depends on, if there, if there are choppy waves, or if there are swells.

LT JOHNSON: Okay.

WIT: ….if their swells, 6-0 feet they, they see….

LT JOHNSON: Yeah, if swells, will fill up that area, that trunk area?

WIT: If its, if…if you have swells that are breaking on a submarine, there going to come right up over the top anyway.

LT JOHNSON: Okay. Okay, and that's all.

(Members talk over one another)

UNKNOWN: [garbled] _____ depending on the direction sea state, I mean the waves can run up the back of the deck too.

LT JOHNSON: Sure.

UKNOWN: …there's a lot of pheno…there's a lot of forces here at work to fill that upper escape trunk volume back up for you. So…

WIT: And then…then

LT JOHNSON: Is a piece of that fore trunk just for the sail?

(Talk over one another)

UNKNOWN: That's the fore escape trunk, we're talking….your were standing by the aft escape trunk.

WIT: No, we were...forward escape trunk

(Members speaking simultaneously)

UNKNOWN: The forward escape trunk is after the sail .

UNKNOWN: Oh, I'm sorry.

WIT: Exactly.

LT JOHNSON: Okay.

WIT: The hatch that is forward of the sail , is the weapons shipping hatch. We, we…that one was, that's the one that is upper level…

LT JOHNSON: You're basically in the middle of the ship then.

WIT: Exactly.

LT JOHNSON: Okay. That's where I thought, that's where I thought we were. We're in the middle of….is the middle of ship the highest point of the deck on the ship when it's on the surface?

WIT: No….

LT JOHNSON: Other than the sail.

WIT: …if we are on the surface its usually the forward deck, but the trouble with the forward deck is that you have waves coming over from the speed of the ship….

LT JOHNSON: Yeah, sure.

WIT: ….and also the fact that you don't have an upper and lower hatch on the weapons shipping hatch.

LT JOHNSON: Right. Thanks that's.

LT HEDRICKS: LT Hedrick, SUBPAC. I just want to clarify something that you just said. You were talking about, waves filling up that free flood area with periscope depth being around 6-4 feet. At periscope depth, that entire area is completely underwater. He is talking about the waves once they are actually towards the surface.

LT JOHNSON: Yeah, right, I understand that, maybe I confused the issue, I was wanting to know if, if the sea state was such that it kept filling that trunk up…I'm, in my mind trying to wonder, you comment that you can do, go to periscope depth and get a good view at 62 feet, if he's at 61 feet with a seas state as such that it keeps filling the trunk up, could he really see out.

UNKNOWN: LT, an occasional wave will fill up that whole void resulting in several more minutes of…

(Simultaneous speaking in agreement)

UNKNOWN: ….an Officer of the Boat does ride with swells, some.

UNKNOWN: It really depends exactly. LT's point exactly, depends on what the seas are like. If you have large swells, the boat will rise with those, and the peri….and the depth below the surface will stay relatively constant. And then other hand if you have a choppy….a more choppy surface….

UNKNOWN: When he was down by the trunk, when he was at the trunk draining it, they were already on the surface.

LT JOHNSON: Sure.

UNKNOWN: They are not periscope depth at all.

LT JOHNSON: Right.

UNKNOWN: So it is hard to make that direct correlation if the seas big to go over the trunk, is it big enough to submerge the scope.

LT JOHNSON: And that's where I was con…getting kinda hung up, was the seas big enough to go over the trunk….

UNKNOWN: It all kinda cancels what kind seas they are, what angle is coming at the boat and all that kinda stuff.

LT JOHNSON: Thank you.

LT HEDRICK: LT Hedrick. I have one or two other questions for you Chief. Uhm, 6-0 feet, that's your normal periscope depth? Is that here local waters or is that where you typically go all the time?

WIT: That' the initial one that we come to, 6-0 feet depending on once we get there, obviously, on a sea state is, is where we direct the submarine to go up or go down. Uhm, if the sea state is very, uhm, calm and we don't want to have, anybody indicating that we are there, then we will come back down to 6-2 feet or somewhere in that range and try to hold the submarine. Uhm, a lot of it also has depend, you know, how much angle you have on the front end of the ship, on whether you have a two or three degree up angle, or whether the ship is at a zero bubble, or half bow or whatever the case may be. But, uh, 6-0 feet is what we usually start out at and then depending on how it is there, we go up or down.

LT HEDRICK: Okay. You also said, uh, uh, we, we've done a lot of reconstruct of depth and angle and I just want to touch on speed real quick. Uhm, 6 knots at periscope depth is what you said was ordered up….

WIT: Yes, Sir.

LT HEDRICK: Uh, emergency deep was called for, a full ballast rung up as you go ahead and take the ship down, you increased your angle once you were told to uh, to make your depth 400 feet. At what point, uhm, when you got to 400 feet, did you, was the 2/3s bell then again ordered up? Was it as soon as you got there? Was it right before, you went…did the blow? Or somewhere in between?

WIT: It was, uh, close to when we got there.

LT HEDRICK: Close to when you got there.

WIT: Right.

LT HEDRICK: So the ship had been….

WIT: We already….

(members talking over one another)

LT HEDRICK: ….down from wherever it had achieved on it's way up to full bell…

WIT: Right.

LT HEDRICK: Coasting down for a few minutes before you did the blow.

WIT: Exactly.

LT HEDRICK: Alright. Thank you Chief.

LCDR SANTAMOURA: I have one more for you Chief, LCDR Santomoura, SUBPAC. Uhm, when you were at periscope depth and you do….your on.…you're going to do the emergency deep, uhm, when you get down to 400 feet, what course what ordered prior to _____ blow?

WIT: We, we had a, uh, left 15 degrees rudder on that I can recall, and we were coming, I think, to a 3-2-0. Uhm, as far as I can remember, we were coming left at 3-2-0. And with, rudder amidships was ordered up at the emergency blow. So, where the ship drifted over toward course marked, or, or, or to the, to the left of it, but I can't tell you, you know, I can guestimate that that's probably the area that we were at.

MR. SCHEFFER: Uh, Jim Scheffer here Chief. Uh, my first intention, was to, uh, okay, finish up with you today without having you come back. I think probably the major round of okay questionings are going to be over, uh, I would have you relax a bit, come back tomorrow and what will be primarily asking is some, uh, some, I will phrase it as more the, okay, boiler plate aspect, okay, getting into your professional qualifications, training a bit, and then some of our, uh, okay, performance issue, uh, in particular, uh, a 72 hour profile that you might have mentioned before, of your time prior to the incident as far as on watch, off watch, sleep, rest and when you were off duty. So you can have tonight to think about that. And that should probably finish us up tomorrow. Unless we have a few clean up questions. But, thank you very much. There, were, uh, you know, you know the answers were, okay, right up there, you are very knowledgeable in your field, and, uh, we will see you here at, uh, 0830 tomorrow morning.

WIT: Yes, Sir.

MR. SCHEFFER: And this will, uh, okay, close the first interview session, at time, uhm, looks like 1558 or so.

NATIONAL TRANSPORTATION SAFETY BOARD
VERBATIM TRANSCRIPT OF INTERVIEW WITH
MMC (SS) CURTIS STREYLE
CONDUCTED AT COMMANDER, SUBMARINE SQUADRON 1, CONFERENCE ROOM,
822 CLARK STREET, BUILDINT 661, PEARL HARBOR, HAWAII

ON 14 FEBRUARY 2001

MR. ROTH-ROFFY: Uh, good morning, uh, we are hear again with Chief Streyle. We're continuing the interview that was started yesterday. Today's date is Wednesday, February 14, and the time is approximately 0930. Uh, my name is Tom Roth-Roffy. And I'd like at this time for those at the interviewing table to introduce themselves.

MR. WOODY: Bill Woody.

LT HEDRICK: Doug Hedrick, SUBPAC. Not present right now, but probably will be joining us some point during the questioning is LCDR Rich Santomauro, also SUBPAC.

LT JOHNSON: LT Charlie Johnson, United States Coast Guard.

LTJG KUSANO: LTJG Ken Kusano, United States Coast Guard.

CDR CACCIVIO: CDR John Caccivio from SUBPAC.

UNKNOWN: Okay Chief, uh....

UNKNOWN: Hold on real quick. Before we get started, I just want to clarify one thing. Okay? I just got off the phone talking to your XO,....

WIT: Yeah.

UNKNOWN: ....uhm, there's some confusion between what the Pentagon reported last night in the news, versus....

WIT: We just discussed that.

UNKNOWN: Okay, well let me tell you what I talked to your XO about then. Between the discussions that, uh, occurred in this room yesterday and what happened with the Pentagon, and, uh, unfortunately reporters can report what they want, and uh, the Pentagon can report what it wants, your comments yesterday, because we did not consider the interview completed, were never discussed outside of any of the NTSB folks that you see here,

and their supervisors when all meet at 5 o'clock and us. So rest assured your comments were never misconstrued. Somebody else's comments were misconstrued. Your comments may be the comments that help us to refute comments, change comments or make future comments. As I explained to your XO, as is, as is often common the case, the Pentagon may be a little bit out of the box. We may be out of the box, but we did not say anything, yet, so I don't think we are. Okay?

WIT: Yes, Sir.

UNKNOWN: So if you have any confusion with us, or any concern for the fact that we didn't understand what you said, I think you can assume that we understood what you said yesterday and, uh, uh, in fact we understood it pretty well.

UKNOWN: I think.

UNKNOWN: (laughing) So, we'll have more questions obviously based upon what the Pentagon said last night, but from that perspective I think we're, we're on the same page as you right now. Okay?

WIT: Okay.

UNKNOWN: But if you have any questions, you feel free to ask us.

WIT: Alright. Thanks.

MR. SCHEFFER: Okay, at this time, I'd like to, uh, turn the questioning over to Mr. Bill Woody.

MR. WOODY: Okay. Uh, Bill Woody, uh, Chief Streyle, uh, yesterday you mentioned, uh, that, uh, you were relieved from the, uh, duties as the, uh, diving, diving duty, uh, the diving officer of the Watch, and that you assumed duties, someplace, uh, rescue assistance. Would you repeat that again so that we can have it all on one part of the record. Just explain to us what the detail consisted of, uh, tell us about the swimmers, whether they were qualified, whether they were in wet suits....

WIT: Okay, uh...

MR. WOODY: ....uh, you know, tell us about the **bid level** and the hatch you were going to use.

WIT: After I got relieved as the Diving Officer of the Watch, uh, in control, uh, I was direct...I, I headed towards the middle level, the crew's mess area, and forward escape trunk. Uh, [garbled]_____ we got the, uh, word to drain and open the lower, uh, forward escape trunk hatch. At that time we had personnel breaking out the man over board bag, which is our rescue bag and also, uh, divers were suiting up. We have four divers onboard that suited up. The, uh, divers were not in wet suits because, the, uh, I don't think the temperature actually in the water would indicate that they needed to be. Uh, they were, uhm, they were equipped with, uh, inflatable vests, you know, uhm, tag lines and, uh, a rescue harness, uh horse collar, in order to assist getting people onboard if it was necessary. The additional man overboard gear, as well as the, uh, hello equipment was broken out to assist. Additional tag lines were brought up from the torpedo room to assist if necessary to haul people onboard as we needed to. Uhm, approximately, there was approximately, uh, ten to twelve people in the crew's mess that were, uh, there to be either part of the rescue and assistant team or to assist those breaking out the gear necessary. While other guys were going throughout the boat, uh, breaking out other gear that we could use possibly to get these people onboard, as well as, blankets and towels and stuff like that once they got onboard to help them. I know the wardroom was being, uh, being, uh, setup and uh, uh, sanctioned as the area that, uh, we would take anybody that would need medical attention. That's where the Corpsman was at with, uh, all of his medical gear broken out and the assistance of, uh, the individuals, from the, uh, uh, MS division to assist him, as far as triage and stuff like that goes. The, uh, lower hatch was drained and opened, we were given orders to commence draining the upper hatch, which we commenced and we also, uh, broke out, like I said, uh, it's called a condom or a curtain, that assists with, uh, excessive amounts of water coming into the ship to drain it through a particular area that we...we, uh, hang that up below the, uh, forward escape trunk to direct the flow of the water...preventing it from going everywhere, and that was rigged and that, and, and at that point we were standing by. Uh, the divers were suited out, uhm and ready to go, it was in a matter of minutes after I got there, so, they, they already were stationed or getting stationed as I came down. Uh, then the divers were directed to go to control or, and hang, and, and hold at upper level waiting to go to the bridge and over the side. They s...the word was that the divers were possibly going to go over the side, due to the fact that we couldn't, you know, because of the water over the, uh , deck area, that, the, that

would probably be the best place for them to go over the side and bring people onboard if necessary.

MR. WOODY: Alright. If you'd been able to open up that, that, that particular hatch, the, uh, forward escape hatch, which is, in the, the crew's mess?

WIT: Right.

MR. WOODY: If you had been able to open that up, if seas had permitted, would you describe how you would, uh, be ah, the evolutions that you would go through to take someone out of the water.

WIT: Yes. We, uhm, One, we would have sent divers over the water to either retrieve them in, uh, life harness that was, uh, uh, uh, attached to a tag line that we would assist the...to pull into the boat. We have, a, uh, uh, ladder that we put over the side to assist them getting up to the, up the side of the submarine and we also have individuals that, uh, put on the harnesses and lanyards that, uh, will hang over the side to help bring em up along the side or provide assistance to bring them up on board. Uhm, the divers themselves will be tended by individuals whether they are on the deck to also assist with them, helping them getting back, depending on the sea state of the water. So, uh, we, we would have, uh, at least six to eight people on deck, you know, positioning, uh, personnel so that we could bring them up on board. Once we got them onboard, then we would take them down below, either to the crew's mess where the area was setup to stage individuals or to the wardroom if they needed medical assistance.

MR. WOODY: Thank you. Now you said this involved six to eight people, and...is this a drill that you ever participated in...extracting someone from the water?

WIT: Yes. We've, uh, participated in, uh, uh drills were we extracted, uh, marines from the water and, uh, evolutions where the submarine participated with Marines, uh, reckon....group of marines, where they splashed the water and we retrieved them and brought them onboard the submarine.

MR. WOODY: Were the, uh, in, in the senses were the Marines that you brought of the water, were they, uh, were they extracted without any problems? Or were there any problems involved [faded out].

WIT: Yeah, it was, uh, it was rough, but, uh, we didn't have no problems getting them out of the water.

MR. WOODY: Where there any injuries?

WIT: No.

MR. WOODY. Okay. Was there any problem, uh, of holding the ship in station alongside the swimmers in the water?

WIT: For, the, uh, for the Marines?

MR. WOODY: Yes, uhm, mmm.

WIT: Uh, no.

MR. WOODY: Okay. Could you tell us, say, about the qualifications of the swimmers.

WIT: Well we have, one of the swimmers is Command Master Chief. Uh, and he's been in the Navy, uh, in excess of 24 years and he's probably been a diver probably the majority of the time. So he has large qualifications as far as that goes. And he's the, uh, lead diver. Uhm, the other divers have been, uhm, sent through the Navy dive school which consists of six weeks of more...of training, uh, as far as swimming, their extremely strong swimmers and stuff like that. Uhm, and they've been onboard at least, they've been through the school and onboard at least year. Majority of them, I think one of them probably has been through for about 8 months. Uh, the divers themselves, they conduct PST in addition to our normal PT that we do, they usually have another half hour PT, uh, reflecting, uh, physical fitness in regards to swimming and running whenever we're in a different port doing, uh, normal PT anyhow.

MR. WOODY: You exercise with the Marines, you say it was choppy. Uhm, can you describe what the seas were, how high the chop was.

WIT: Uhm...

MR. WOODY: Pretty strong wind, uh...

WIT: I can't recall the extent of the wind, but at the time, it was uh, you know, probably, uh, two to three feet and choppy, waves, uhm, the, uh, marines, whenever they splashed the water, they had, uh, life vests on them, not a thing like this, but

inflatable life vests, but they also had a lot of gear with them too. So, they had a little bit of work to get onboard.

MR. WOODY: Is there any danger of people, of people in the water bumping up against the side of the, uh, submarine and sustaining injury?

WIT: Uhm, if we had, if, if the, uh, waves were extremely obviously that would be a worry. Uhm, what we do, is we position the submarine, if we, we set the submarine in position where we are taking the waves on the one side and then on the other side the waves are not breaking on the submarine and that side we bring them on.

MR. WOODY: Okay. Would anyone else like to proceed this line of question to bring up something that perhaps I didn't as on the, uh, ...

LT HEDRICK: Yes, uh, LT Doug Hedrick. Uhm, a couple times you've reference, uh, the condom or the curtain that you ring around, uh, that you put up around the, uh, escape trunk, just to clarify the purpose of that, is, that is, is that associated with draining the trunk or is that associated with after the hatch is open and draining the water.

WIT: It is after the hatch is open and directing excessive amounts of water, water that comes through the port escape trunk as we took waves over, over the, and stuff like that.

LT HEDRICK: So the purpose to is to protect the, uh, the ship's gear...

WIT: Exactly.

LT HEDRICK: ....that is located in the upper level below the trunk so you're keeping that from getting wet. Okay, uh, what do you evaluate as your ability to get injure personnel below decks through the hatch? Say somebody's, you know, uh, broken arms, broken legs, whatever, hap...is, is that an easy task?

WIT: It's not an easy task. Uh, the, uh, Corpsman and some of the individuals and, uh, are, are trained for TREOSH to bring individuals through the ship. Because you know a submarine is not a easy place to get through, so we also train on those aspects if somebody is injured to get them from aft to forward. And that's just as, as, uh, painful, or as much work from getting topside down below desk. Uh, if they're injured to the

point that they actual can't walk, then we have stretchers that we strap to them and bring them down.

LT HEDRICK: In which case that you have to have...be, lashing them into....

WIT: Lashed down....

LT HEDRICK: ....into a stretcher, topside on the submarine.

WIT: ....then lowered down into the boat.

LT HEDRICK: Okay, uhm, have you ever, uh, practiced putting divers into the water from the bridge and conducting rescues up the sail?

WIT: Uh, not since I've been onboard the boat, have we attempted to do divers into the water from the bridge. Uh, we have the ladder, which you saw over the side, and uh, if they actually had to do that, that would be a very shaky evolution because the extend of the role of the submarine and the fact that the ladder is not strapped to the side of the boat. Uhm, on previous submarines, you had the [garbled]_____ going down all the way to the deck, but on the 688s they don't.

LT HEDRICK: Okay. About what is the height of the sail there?

WIT: Uh, about, uh, I can't remember off the top of my head. It's probably at least about 25 feet or more.

LT HEDRICK: So you have 20, 25, 30 feet, uh, and the ladder is just attached from the top, it's a rope ladder, so it would be just handing loose.

WIT: Yes, yes.

LT HEDRICK: Okay. Do you, uh, have sufficient lines onboard the ships so you can have tag lines for the divers tended from the bridge cockpit?

WIT: Yes.

LT HEDRICK: And, uh, very briefly, I think you touched on it yesterday, but there might have been some confusion, uh, you mentioned the forward escape trunk is where you were, you were staged to conduct a rescue. Where is the, uh, forward escaped trunk in relation to this...to the rest of the ship topside?

WIT: You have the, uh, cell of the boat, uh, penetrating the hull and it is approximately, uhm, 10 to 15 feet aft of the aft end of the cell. So, it's near the center of the submarine.

LT HEDRICK: Okay. Are there any other, uh, hatches other than what we already talked about, uh, the sail on the bridge cockpit and the forward escape trunk. Are there any other personnel accesses that would be feasible to use in a rescue?

WIT: Well, you have the aft escape trunk that's also designed to provide access up and down But the feasibility of bringing them down through there is further aft and waves come in over that breaking is probably more likely to happen than aft...actually at the forward escape trunk. Uh, you have the bridge, uh, or the weapons shipping hatch which is all the way forward, but it doesn't provide any type of protection for individuals or coming, coming up and down the ship while the submarine is underway. And it's located forward of the cell and if the ship has any way on, then you have the possibility of waves coming up over the front bow of the ship and into the forward escape trunk [garbled]_____.

LT HEDRICK: Thank you Chief, I think that clarifies all those logistics.

CDR CACCIVIO: This is CDR CACCIVIO from SUBPAC, I have a question for you Chief. We went through the forward escape trunk, I saw the weapons shipping hatch yesterday, uh, getting on the ship, uh, could you discuss, the difference between entering the ship through the weapons shipping hatch, and...or trying to bring a person through the weapons shipping hatch vice bringing them through the forward escape trunk. And I'm really accen...trying to accentuate the, uh, major difference in height here.

WIT: The, uh, the weapons shipping hatch is obviously easier to get through and its usually the access design in port. Uh, you have one level that you are going down into the weapon shipping hatch in that you actually go down a ladder into upper level. So, you probably have about eight steps that you have to go through, but it is straight up and down. There is no center area inside the trunk area. I mean, it's a very small area if there is. Uh, the forward escape trunk you have the upper hatch, then you have the escape trunk area that you have to transit which has approximately, six to eight ladder rungs inside there, and that's about an eight feet area that you have

to go through. Then you have to go down to the next hatch which is the lower hatch for the forward escape trunk into the middle level. So you are actually, uh, progressing down two levels into the, the forward escape trunk down into middle level whenever you are using that area.

CDR CACCIVIO: Okay. Can you briefly describe what a diver would be carrying with him and have on as he made, uh, uh, as he went up through the sail and over the side down the ladder and onto the deck to do, uh, to recover a swimmer.

WIT: Well, what he'd have on, is he'd, he'd have to carry with him his fins. He would have on his booties and his, his, uh, his dive trunks, as well as, a, uh, a inflatable device and possibly a knife on the side to assist him, uh, any entanglement or stuff like that. Then he'd also have to be attached or carrying the tag line he's going to be utilizing, because if he is going to go through the bridge trunk, then he's going to need somebody from the bridge to be tending his line because it is not possible to put too many people into the bridge. Uh, and then the other thing that he possibly have, he'd have to have, the, uh, uh, horse harness in order to, the pullable horse harness in order to put around an individual so that can be pulled towards the submarine.

CDR CACCIVIIO: **Would you see some paramedic gear to be carrying while your carrying down the ladder.**

WIT: Extensive amount of gear to be carrying up the bridge.

CDR CACCIVIO: Once they....

WIT: [garbled]_____ through the weapon, I mean, forward escape trunk.

CDR CACCIVIO: Okay. Once he's out on the deck, how much working area would you say he has to actually stand on the deck?

WIT: Alongside the, uh, sail?

CDR CACCIVIO: Right, assuming, either way, if he would of moved back behind the sail, or forward sail. How much working area would he have due to the curvature of the ship where he could literally stand to work?

WIT: He probably would have about a six foot area. Uhm, from side to side that, that he'd be comfortable with, uh, putting

gear down and, uhm, working out of. Aw, but, it's still be a curvature area.

CDR CACCIVIO: Is there any risk of losing his gear if he puts it down?

WIT: Depending on what side he puts it on, yes.

CDR CACCIVO. Okay. That's all I have.

LT JOHNSON: Chief, LT Johnson, Coast Guard, uhm, couple of questions. Once, once, the vessel, once you completed your surface evolution, and, uh, you got a visual on the uh, vessel, the fishing vessel, did you, uh, did the Officer of the Deck initiate a low pressure blow?

WIT: The, uh, word was passed to prepare to surface at that point and that's the start of the, uh, actions that are necessary to line the ship up to do a low pressure blow. Prior to...I mean right after me being relieved, I know that the, uh, word passed for surface, surface, surface and low pressure blow was conducted.

LT JOHNSON: So you did conduct a low pressure blow.

WIT: Yeah. And then the low pressure, from that point on, I know...I don't know how many low pressure blows we did, but we did continuous blows throughout the day and evening in order to keep air going to the ballast tanks.

LT JOHNSON: After you conducted your low pressure blow, how, how much **freeboard** does a submarine have, and, and I want to make the assumption that, uh, on a glassy day. Okay, we got a calm sea, and you, you surface the boat, you do an L....LP blow, how much **freeboard** have you got?

WIT: When your talking free board, your talking from the, top of the deck....

LT JOHNSON: From, from the water to the main deck.

WIT: ....to the water. Probably, uh....

LT JOHNSON: ....water to the main deck.

WIT: ....well, with the curvature straight up, probably, uh, six feet. Six to eight feet where it rounds up at the most.

LT JOHNSON: Is that what she's got right now sitting next to the pier?

WIT: Pretty much, yeah.

LT JOHNSON: Is that...that's, that's maximum.

WIT: What you see at the pier....

LT JOHNSON: Right.

WIT: ....is basically what you'll see underway. And then you have to start, like I said, glassy, that's what you'll see and then you have to take into consideration the speed of the ship and then waves.

LT JOHNSON: Sure. Uhm, the trunk area that you were draining on the forward escape trunk, the, uh, how much, how much water does that area hold if it is totally flooded? Can you...just approximately.

WIT: The, uh, the escape trunk itself, or the upper aft hatch?

LT JOHNSON: No, what you were draining to allow you to open the upper hatch, the trunk, I don't know what you call....

WIT: I would say, I would say it's a free flood area....

LT JOHNSON: Yeah.

WIT: ....around the port...the, uh, upper, hatch, I would say approximately fifteen gallons or more of water.

LT JOHNSON: And, how, how, uh, how big...what's the diameter of the drain line?

WIT: Oh, the drain line is approximately one inch.

LT JOHNSON: One inch drain line, fifteen....

WIT: ....maybe one and a half at the most.

LT JOHNSON: ....so you have an area that holds fifteen gallons drainage for one inch.

WITINESS: Yeah, yeah.

LT JOHNSON: Okay. The, uh, with the submarine on the, the submarine on the surface as it was, and after you conducted the low pressure blow, that you guys conducted, would the forward escape trunk hatch be the, the highest most point of the main deck from the water depth? In other words does the submarine sit, when you are on the surface, I know obviously from looking at it as you go out, obviously the submarine tapers down....

WIT: True,

LT JOHNSON: ....so the aft hatches are going to be close to the water....

WIT: Reflecting the....

LT JOHNSON: ....sitting level on the surface as you would have been, would that be the highest point on the main deck?

WIT: Naw.

LT JOHNSON: It would not?

WIT: It would be towards the sail.

LT JOHNSON: You're...so the trunk, you call it the weapons handling trunk....

WIT: It is the weapons handling trunk....

LT JOHNSON: ....would be the highest trunk?

WIT: Yeah.

LT JOHNSON: Okay. Do you....two feet higher maybe? I don't know. Explain to me.

WIT: Oh, no, not that much. Less than a foot.

LT JOHNSON: Were talking less, less than a foot, than less is 12 inches higher?

WIT: The difference wouldn't be that much, uh, and then, it...the fact that, you know, that weight on the ship up forward would also be pushing that...the bow down as we went. So, it could be higher one minute, then it will be lower the next. So, in all, in all prospective, the, the forward escapee trunk, were

we would go up through would be the most level, in regards to be stable and as far as continuos, but, uhm, as far as overall, the forward, uh, the weapons shipping hatch is the area that is a little higher.

LT JOHNSON: Sure.

WIT: Until we start bouncing on the waves.

LT JOHNSON: When you got, when you got turned around, you got on station with the survivors, was the submarine making enough way to push a **bow away?**

WIT: Uh, I'm sure it was.

LT JOHNSON: You were?

WIT: I can't answer that because, uh, I wasn't in the control room at that point, and the PEREIVIS wasn't on, so I couldn't see how we were doing. But normally the bow would go up and down.

LT JOHNSON: Yeah.

WIT: In the waves.

LT JOHNSON: But once you got on station with the, uh, with the survivors, from my understanding, you were just sitting maintaining station.

WIT: Right.

LT JOHNSON: Just sitting there wai....that's the pictures that I have seen....

WIT: Right.

LT JOHNSON: ....you were just sitting there.

WIT: Right, right. Uh, at that point you probably have some movement with the bow up and down....

LT JOHNSON: Right.

WIT: ....just because of the waves.

LT JOHNSON: Right. Would it be easier to take people that you rescue down through that forward weapons handling hatch? Maybe, maybe....I want to make sure I understood you correctly. The aft...the fore escape trunk hatch requires you to go through two hatches, you got an eight foot area....an eight foot section inside the escape trunk and then you go down two levels.

WIT: Right.

LT JOHSON: ....of ladders. And the fore weapons....

WIT: Well, the two levels includes that, that ex...that, that eight foot section where the one ladder is. You got the one ladder, then you got another ladder going into, into middle level, so....

LT JOHNSON: I see.

WIT: ....your going down two levels of ladders.

LT JOHNSON: Two levels of ladders. And the fore escape...

(Talking over one another)

UNKOWN: Do you want, while your gone...I could draw this on the board to make it, more...

UNKNOWN: Obviously if the Chief could do it, it would be great.

WIT: I, I could do that.

LT JOHNSON: I, I, my question is basically...

WIT: The, the whole concept is....

LT JOHNSON: ....shorter, shorter travel distance when you go....

WIT: ....the shorter travel distance is one thing, but the extent of the, uh, the, uh, possible damage that can be caused from waves of stuff coming through the weapons shipping hatch in regards to the fore escape trunk is the reason why the fore escape trunk is used. If you take water down the weapons shipping hatch, you're going to be damaging alot of equipment, uh.

LT JOHNSON: Where does that lead into?

WIT: Well, you have it come into upper level, which there's no major equipment in upper level, but middle level we have extensive amounts of, uh, electronic gear from the, uh, atmosphere monitoring equipment on down.

LT JOHNSON: Is the hatch size the same for the, for the....

WIT: The hatch size is larger for the weapons shipping hatch....

LT JOHNSON: So does that forward hatch larger, it takes you to the middle level..

UNKNOWN: You came in the weapons shipping hatch.

LT JOHNSON: Okay. That's what, I came in.

UNKNOWN: Right.

LT JOHNSON: I have not gone through the escape hatches....

UNKNOWN: No. The aft escape, no you have not.

LT JOHNSON: Right. So, I, I try go....

UNKNOWN: You came through the weapons shipping hatch. So you came down one deck into the upper level.

WIT: There is about a five inch difference between, the, uh, diameters....

LT JOHNSON: The di...so it's a bigger hatch?

WIT: Yes.

LT JOHNSON: Okay. Uhm, and you don't, you don't...at sea, that hatch is never opened at sea for any reason?

WIT: For which, the, uh, fore escape trunk....

LT JOHNSON: Right, for...oh, no, ,...

WIT: ...uh, the weapons shipping hatch.

LT JOHNSON: ....the weapons shipping hatch. Is it never opened at sea for any reason, or is it ever been open?

WIT: Yeah. I'm sure it could be, but, I have never opened....

LT JOHNSON: Your, your experience...

WIT: ....at sea, uhm, no. Uhm, usually the hatch doesn't get opened until we are pier side. Uh, the fore escape trunk hatch is the one we, uh, progress in and out of the submarine when ever were are doing maneuvering, what's going in and out. If we have to go topside to do, uh, retrieval evolutions, uh, you know, with the Marines that I talked about, that's the hatch we did.

LT JOHNSON: The personnel transfer that occurred for the VIPs went through he fore escape trunk?

WIT: The...whenever they went off the boat, they went through the forward escape trunk. When they came on the boat, we were still pier side.

LT JOHNSON: Sure, so they would use that. Sure.

LT HEDRICK: Chief, LT HEDRICK. Let me ask one or two questions that might clarify this for the record. Uh, standing topside on the submarine at sea, several feet of waves, the submarine is moving around, where is the more stable place to stand? Next to the weapons shipping hatch or next to the forward escape trunk hatch.

WIT. Forward escape trunk after the sail.

LT HEDRICK: Forward escape trunk after the sail. That's closer to the middle of the ship so the deck is not physically moving as much.

WIT: Right.

LT HEDRICK: Okay. Where is the position of the weapons shipping hatch in relation to the bow of the ship where it starts to curve down where waves might be riding up. We've, we've talked about how waves can come up the side of the ship through the curvature. There's also curvature towards the front of the ship as the ship goes underwater. How close is the weapons shipping hatch to that?

WIT: Well, it depends if you are taking...in reflect the bow, you know, the dome, and stuff like that, but you are talking

anywhere from, uh, the weapons shipping hatch is probably anywhere from 25 to 30 feet aft of the forward most part of the dome. So, uh, yeah, you can walk, across...ah, a good 20, 25 feet forward. But the shipping hatch, obviously, you've got the sail between that and the forward escape trunk, so you got a large area over at least a hundred feet or more from the front part of the ship.

LT HEDRICK: In your estimation, we talked about the stability of the deck. We also talked about how you would want to pick up anybody in the water on the lea side of the ship, you position the ship for that. Would you be able to get an adequate lea, I mean equal protection, at the weapons shipping hatch as you would for the forward escape trunk?

WIT: No, no.

LT HEDRICK: The forward escape trunk provides superior protection from waves, wind and picking up anybody from the water.

WIT: Yes.

LT HEDRICK: Thank you.

LT JOHNSON: This is LT Johnson. Why is that?

WIT: This is due to the positioning of the ship would be because you have the, uh, larger sections of the ship forward and aft, the waves are being taken on, on the one side. The come and hit the decks on that side, vice coming around....

LT JOHNSON: Sure.

WIT: ....the slight area that is forward to the weapon's shipping hatch.. So you could, actually if the waves were coming, you still would have some coming possibly around the side.

LT JOHNSON: Did I miss, did I miss, did I misinterpret what you said awhile ago, that the weapons shipping hatch provides a more...a flatter more stable area?

UNKNOWN: No.

LT JOHNSON: That's not what you said awhile ago.

WIT: A flatter more stable area?

LT JOHNSON: Well you said, a larger flatter area, I'm sorry, maybe stable's not correct.

WIT: It's, it's not flatter. It's, it still has the same curvature and everything. There's a larger access hole.

LT JOHNSON: Yeah, the trunk itself is larger.

WIT: But the stability up forward there, is not there unless you have the ship's low, and have glassy seas and stuff...and you know you are not going to take no water. So, where would I rather operate out of doing anything, it would be the forward escape trunk.

LT JOHNSON: Sure. Okay, that's, that's.. Uhm, was the deck awash after your, after your LP blow?

WIT: Uh, I don't know.

LT JOHNSON: You didn't, you didn't see it...

WIT: I wasn't in control at....

LT JOHNSON: ....was the PERIVIZE on in the control room. And people still looking out of the scopes?

WIT: It was.

UKNOWN: He wasn't in the control room at that point

WIT: I wasn't in control at that point. I had been relieved of Diving Officer of the Watch...

LT JOHNSON: Right.

WIT: We...once we had the boat up and was holding and we prepared to surface, shortly after that I got relieve.

LT JOHNSON: Okay.

WIT: So, I would, you know, the, uh, the uh low pressure blow occurred after I had went down below.

LT JOHNSON: The, uh, we, we talked about the, uh, the uh, and I'm assuming it would be the Commanding Officer's decision not to open that forward escape trunk hatch if the seas were too....

UNKNOWN: Commanding Officers wouldn't open hatches at sea.

LT JOHNSON: Right. But he made the decision, no, we're not going to do this, we are going to bring the divers to control and possibly deploy divers from the bridge. If you had to deploy divers from bridge, what the follow up plan? What do you do the people? Do you haul them up the side of the bridge on a come along? Or a pulley....

WIT: Well, that was....

LT JOHNSON: ....or system. Or how do you get them into the submarine....

WIT: ....it, it would be extremely painful for getting people up the side of the sail.

LT JOHNSON: Yeah. Would they be safer in their life...uh, that's not...

WIT: Well....

(Simultaneous talking)

LT JOHNSON: ....well, would they better off left in their life rafts?

WIT: Along the side of the boat, depending on the sea state, they would be safe.

LT JOHNSON: In their life rafts....

WIT: Yes.

LT JOHNSON: ....and just continue to float....

WIT: I would say so yes.

LT JOHSON: ....and monitor them. So there was no...actually there was no plan devised on what to do with the people if you had to deploy divers.

WIT: I'm sure once we rigged the condom, and if the extent was, I don't know what their, their ideas were once the divers went over. The only thing that I could speculate on which, you know would be pure speculation is....

LT JOHNSON: Yeah.

WIT: ...that somehow would have forced the hatch open and brought them down.

LT JOHNSON: But then you had your condom thing, already rigged, right...

WIT: Right, right.

LT JOHNSON: ....and you were in the process...you were draining, continually draining,...

WIT: Right, right.

LT JOHNSON: ....you had the condom rigged. Uh, I guess I'm wondering were they...was there any talk about maybe putting the Corpsman up on main deck to treat them on the deck? And where I am going with this, I'm trying to get a feel for what the deck conditions were. If there was such that you couldn't open the hatch...if you had any ideas as to what the plan was to do with people....

WIT: I, I don't know, ...

LT JOHNSON: ....if you brought them on....

WIT: I don't know, uh, what the plan was.

LT JOHNSON: You don't, don't have any idea?

UNKNOWN: Do you think the quest...the line of questioning were going on here would be out of the realm of what the Chief would be expected to be able to evaluate the responsibilities....

LT JOHNSON: Oh, oh yeah. I, I don't know...

UNKNOWN: Just, just, just to amplify some things here that are submarine specific. Number one, you have one Corpsman. He is an independent duty Corpsman.

LT JOHNSON: Sure.

UNKNOWN: You would never put that Corpsman at risk because now you have no medical coverage for the rest of the crew.

LT JOHNSON: Sure.

UNKNOWN: Sending the Corpsman on deck would be a last resort.

LT JOHNSON: Sure..

UNKNOWN: Only if a, injury warranted immediate attention. Uhm. There are alternatives are for bringing the people up over the side of the sail, in through the, into the, sail access and back down through, into the, uh, control room area and down below next to the Corpsman. However just to bring them onboard for further transit, that could be done using cargo netting rigged up over the snorkel mast....

LT JOHNSON: Sure

UNKOWN: ....it could be done with a series of pulleys. This big herculean catch rig which is designed to drain the water from out of the hatch is designed to allow you to open the hatch during the rift. It is not designed....

LT JOHNSON: Right.

UNKOWN: ...to let you, to allow you to open that hatch with a risk of waves crashing overboard, that would immediately fill that device, but if it so warranted getting a guy down, you could do that. What it is designed to do is protect all that electric gear in the lower level, i.e. the deep ship's emergency diesel engine....

LT JOHNSON: Sure.

UNKNOWN: ....and the drain pump which is just beneath it. But you could bring people down that way, what he's pointing out is the risk is just as large because now you are coming two decks....

LT JOHNSON: Right.

UKNOWN: ....into the ship by sub weapons shipping hatch which is most the times, has either waves at above the ten knots speed would have water cresting right in the vicinity of that hatch or

at no speed due to the yawing of the ship and down would have waves....

LT JOHNSON: Right.

UNKNOWN: ....cresting in that same vicinity.

LT JOHNSON: But..so...

UNKNOWN: But, his ability to speculate on what the master plans were up in control with bringing guys on board would be, would really be, hampering him, I think at this point.

LT JOHNSON: Are you in charge of the R & A team?

WIT: No.

LT JOHNSON: You're not in charge of that. You're not supervising or in charge of that at all?

WIT: No, no, no, I'm, I'm one of the members of it.

LT JOHNSON: Oh, okay. And what is your specific job. I always thought you were...I thought you were in charge of it.

WIT: No, no, I, I just.

LT JOHSON: What do you do?

WIT: I, I, I, I assist topside as a supervisor, uh, underneath the COB and, uh, the First Lieutenant. So, I mean, at that point, I was, I was going topside as a Chief to assist possibly with the divers....

LT JOHNSON: Sure.

WIT: ....as far as, tender, as well as brining people onboard.

LT JOHNSON: Okay. So, you, you wouldn't be involved in any discussions about plans or what to do with people....

WIT: No.

LT JOHNSON: Alright, yeah. I'm not questioning the decision and I understand what your....

UNKNOWN: I just understood...

LT JOHSON: ....saying, and I understand...and I do know that he is located below decks, and I'm just...I'm assuming, or was trying to find out if he was privy to any discussion of...

WIT: No.

LT JOHNSON: ....normally...

(talking over one another)

LT JOHNSON: ....if we're going to put divers on deck, this is what we're going to do guys. Or Chief get ready 'cause if we pull injured people we have to pop the hatch real quick, get down and seal it up again. I, you know, are just trying to get a feel for, was there a plan in affect, that...of, of an alternative means of recovery or not. And, uh, and, uh, the answer to that, I, uh, I don't have anything else.

CDR CACCIVIO: CDR Caccivio, I just have one more question. Could I just ask you this again? Did you...would you say, that, with the survivors in the rafts, and no apparent risk of immediate first aide required that they would be safer in the raft than trying to bring them up on deck and into the submarine?

WIT: Through the bridge yes. And, because...with, uh, the inability to open up the port escape trunk, yes.

CDR CACCIVIO: Okay. If you could open the port escape trunk, and they, they were in the raft, uh, would you still feel they were just as adequately cared...they were just as safe a position in the life raft as they would be in trying risk in bringing them onboard:

WIT: Uhm. I would say that if they are in the raft, in regards to if we had the ability to bring them onboard. I would probably go with the aspect of brining them onboard due to the fact that, they'd be out of the water and on a submarine, stable condition, and down below decks where they can be looked at.

CDR CACCIVIO: Okay.

UNKOWN: Chief we have some personal questions we always ask, and, uh, if you would just bear with me.

MR. WOODY: Bill Woody, and uh, normally we have, a, uh, a trained psychologist who comes on these trips, whose job is human factors. And we just _____, that people that we interview that have been involved in any type of event. Uh, could you give us, uh, your age.

WIT: 40

MR. WOODY: And, uh, your height and weight please,

WIT: Uh, uh, 5'10", 220 pounds,

MR. WOODY: Would you say, that, you're, uh, in good health? Or....

WIT: I would say for my age, yes.

MR. WOODY: Are you on any kind of medication prescribed by a physician?

WIT: Uh, just some sinus medications right now.

MR. WOODY: Are these, uh, something that is prescribed or something that you bought over the counter?

WIT: Prescribed

MR. WOODY: Do they make you drowsy or give you side affects?

WIT: No.

MR. WOODY: What would the medication be.

WIT: Uh, it's like FONASE.

MR. WOODY: It's FONASE.

WIT: Yeah..

MR. WOODY: Is this a spray type device?

WIT: That's correct, right.

MR.WOODY: And we see that you wear glasses? Is...are your eyes correctable to 20/20....

WIT: Yes.

MR. WOODY: You....your distance and reading vision is?

WIT: Fine.

MR. WOODY: Any earring problems?

WIT: No.

MR. WOODY. Now, have there been any events in your life, that, uh, besides this hearing and this trauma that you currently have with press. Is there anything like that before the accident? That caused you anxiety, depression, exhilaration? Such for example like this, uh, this press event, was one that occurred before the accident, I mean, what would we be looking for? Is there anything like that in the previous, uh, oh, months, days before the accident.

WIT: No.

MR. WOODY: Just a happy subtle live and, uh...

WIT: Well, a submarine life.

(Background laughter)

WIT: We had just come back from sea, we had been at sea for, you know, approximately 30 days, and uh, we were doing our in port routine in preparations for going back to sea. Uh, doing a VIP cruise is, uh, I wouldn't routine for us, but we've done alot of them.

MR. WOODY: Alright. Let's go back to the time the ship into port from the cruise. When was that, or how many days ago was that?

WIT: Uh, we came in the following, uh, Friday.

MR. WOODY: So you'd been in around a week then.

WIT: Right.

MR. WOODY: Came in Friday, then next Friday your on a cruise.

WIT: Right.

MR. WOODY: Okay. Would you briefly describe your in port routine, uh, say, uh, let's start with, uh, let's say Tuesday.

WIT: Uh...

MR. WOODY: I'm wondering if it is easy for you to remember.

WIT: Uh, Monday would have been, we would have came in at 0700 which we did, we had a meeting, uh, quarters on the pier and then it turned into a training day where we went to various areas and conducted training. At that point, we would complete our training by noon and go back to the boat, or even if we had training on the boat, which we did, we would continue to do some maintenance on the submarine, as far as PMS, or preparation for whatever is upcoming.

MR. WOODY: Now we're speaking about Monday?

WIT: Yeah, Monday.

MR. WOODY: And then Tuesday?

WIT: Tuesday, we, PT'd in the morning at 6:30, 6:30 till about 7:30, then we broke from there, went back to the boat. Quarters. And then we commenced normal ship's routine which was various work routines throughout the day. Probably left between left between 4 and 5 o'clock that day.

MR. WOODY: And would work start at something like 8 o'clock?

WIT: Yeah, the crew starts about 8:15. I usually start at bout quarter to 8.

MR. WOODY: And you work through four or five?

WIT: I think that day we were there until about 5 o'clock, for the division.

MR. WOODY: Now when you have a PT day of 6:30, what time do you rise in the morning?

WIT: I normally get up at about 5:30in the morning, take my shower and then get my PT gear on and then head to the gym.

MR. WOODY: Wednesday.

WIT: Wednesday, we, did the PT also at 6:30, so I was up 5:30, went to the gym at 6:30, completed that, headed back to the boat and that was my duty day. I took duty for a 24 hour basis at that point. Duty day basically, calls for me staying there 24 hours. The day consisted of working up to until about 4 o'clock. Training in the evening and I think I went to bed at about 10:30 that night. And got up at about 3:30 for an hour tour of the submarine and then slept for about another hour and a half. And then it was everybody up and ready to go for Thursday.

MR. WOODY: In the daytime everybody got up at what?

WIT: 6 o'clock.

MR. WOODY: 6 o'clock

WIT: Thursday was a shorter day for me. We knew we were going to sea. Once we had everything finished that day, we cut people out. I think I left work about 1 o'clock that day or 1:30.

MR. WOODY: Okay, stick where, you started....what time did you start on Thursday? Maybe because you were going to be relieved...

WIT: 6 o'clock.

MR. WOODY: 6 o'clock And you were relieved of your duty at what time?

WIT: 7:30....

MR. WOODY: 7:30...

WIT: 7:30, 8 o'clock

MR. WOODY: 7:30, 8 o'clock. So you were up and about by 6? Was there any PT that day?

WIT: No, not for the duty person.

MR. WOODY: Okay.

WIT: So, I was on duty.

MR. WOODY: Okay, okay. And then you were relieved at 7 o'clock?

WIT: 7:30, yes.

MR. WOODY: 7:30, sorry. And then you left at around noon?

WIT: Yeah, I had work to do, and we finished up our work and we left, approximately 1 o'clock.

MR. WOODY: And then you went off the ship?

WIT: Yeah, I went hone, took a bath, had an hour and a half nap, and then, spent the rest of the time with my family.

MR. WOODY: What kind of commute is involved from SUBASE to your home?

WIT: Less than 15 minutes.

MR. WOODY: 15 minutes. Do you live on the base?

WIT: No, I live, out by the airport.

MR. WOODY: Alright, then on Friday the day of the cruise, what time did you start?

WIT: Friday was an early day for us, I got up at about 4 o'clock, I was on the boat by quarter to 5. Muster was at 5 o'clock for LPOs which was, that was myself. And then...

MR. WOODY: I'm sorry, muster was at what time?

WIT: 5 o'clock.

MR. WOODY: 5 o'clock. Okay. Okay.

WIT: And then we commenced, basically preparing the ship for the VIPs. A clean-up for about an hour, an hour to an hour and 20 minutes. And then getting the spaces ready to receive VIPs. At 7o'clock we stationed the maneuvering watch Personnel took station of where they were required to go. And at that point I went topside as supervisor for line 2. And then we got underway at 8 o'clock, or shortly after 8.

MR. WOODY: I don't think I took a note on breakfast. What time did you take a morning meal? Was that at home?

WIT: Usually I don't eat that much breakfast. I'll have a cup of coffee and maybe a Danish.

MR. WOODY: Okay

WIT: So, that's what I have on my way to work.

MR. WOODY: And, and how much sleep did you get before getting underway...I mean getting up at 4 o'clock.

WIT: I went to bed at about 10 o'clock, so I had approximately 6 hours.

MR. WOODY: Speaking of sleep, do you sleep well, do you rest well?

WIT: Yeah.

MR. WOODY: What's, what's the longest period that you would normally sleep, if you're ...

WIT: If, I,...

MR. WOODY: Not totally tired. What is your normal period of sleep if you're at home and the ship is in port.

WIT: Usually, usually, the longest I sleep would be at bout three and a half hours, then I'll wake up and then I will usually go back to bed for about another two and half hours. So, the longest I stay asleep at a period of time is 6 hours, maybe 6 and a half at the most.

MR. WOODY. And that would be in two, two different time frames.

WIT: No, that is back to back. I just get up in the middle of the night, go to the restroom and then go back to bed.

MR. WOODY: Gotcha. Would you discuss your education.

WIT: I have a high school degree as well as an Associates in Science degree from Triton Technical College.

MR. WOODY: What...may I get the name of the college, please.

WIT: Triton Technical College.

MR. WOODY: And what was the area of study?

WIT: I, I was working in science and working toward mechanical engineering degree.

MR. WOODY: And would you just describe briefly your naval career.

WIT: I came into the Navy in 1981. January of that year. I spent my first 10 years on the BATONFISH, which was a submarine out of Charleston, South Carolina.

MR. WOODY: What class submarine was that?

WIT: Pardon me?

MR. WOODY: What kind of submarine was that?

WIT: It was a 637 class. Hull number was 681.

MR. WOODY: Is that a nuclear submarine?

WIT: Yes.

MR. WOODY: Okay.

WIT: I did ten years on there, I went and made Chief on that boat, and then I left there and did two and a half years at PMT, Charleston which is a maintenance based program for submarines.

MR. WOODY: Alright.

WIT: Then I did...

MR. WOODY: What year does that bring us to in Charleston? Just so I can keep record?

WIT: Let me try to think...

MR. WOODY: If that's too hard to recall...

WIT: About '94.

MR. WOODY: About '94.

WIT: And then I did two years at Triton Technical College under the EAP program for the Navy.

MR. WOODY: Would you give us what those acronyms stand for.

WIT: Enlisted Education Assistance Program.

MR. WOODY: Enlisted...Enlisted Education Assistance Program.

WIT: Enlisted Education Advancement Program.

MR. WOODY: Okay.

WIT: That's what it was.

MR. WOODY: Okay, is it still going on, that program, is it still going on?

WIT: They are phasing it out, but they still have it in affect.

MR. WOODY: And that was in the Charleston area?

WIT: Right, for two years.

MR. WOODY: Okay.

WIT: Then I reported to the, to the GREENVILLE here in Hawaii.

MR. WOODY: About what time was that?

WIT: April of...March of 1996.

MR. WOODY: March of '96. What were your duties on the GREENVILLE when you were initially to report onboard.

WIT: I'm the TMC LPO, was when I originally got onboard, which was Torpedo Division Leading Chief Petty Officer. And shortly after that I took over as Weapons Department Leading Chief Petty Officer.

MR. WOODY: Weapons Department?

WITNE SS: Chief.

MR. WOODY: Chief.

WIT: Weapons Department Chief.

MR. WOODY: Okay. Now have your attended any particular Navy schools, like have you any qualifications like, nuclear school of any kind, or,,..

WIT: Not nuclear school, a long time ago I went to a torpedo based school which was when I originally came in as well as sub school. And that was a long time ago. Had various smaller schools throughout my career.

MR. WOODY: When did you go to sub school? Was that soon after you arrived in, the, in...

WIT: That was directly after boot camp.

MR. WOODY: Straight from boot camp...

WIT: It was, I'm sorry. I went from boot camp to TMA school and then it sub school

MR. WOODY: Okay. I think, I've covered all of the personal type questions that I need to ask and I would like to thank you very much for your cooperation, and in particularly the education you provided to us here.

LT HEDRICK: One amplifying question from LT Doug Hedrick. You mentioned that you were taking a sinus medication...

WIT: Right.

LT HEDRICK: Obviously you are taking that now. Were you taking that the day of or the day before...

WIT: I have, I have taken it for the past few days. Or actually for the past week.

LT HEDRICK: You hadn't' taken it...

WIT: I, I just take it every so often when I really get congested on my sinuses and probably the last time that I have taken it was three weeks ago.

LT HEDRICK: The last time was three weeks ago?

WIT: At least, yeah.

LT HEDRICK: Okay. Thank you Chief.

WIT: Yes, Sir.

CDR CACCIVIO: With respect to you area, I want to go back and...

LT HEDRICK: Of course.

CDR CACCIVIO: ....address some operational questions.

LT HEDRICK: Okay.

CDR CACCIVIO: Okay, this is CDR Caccivio. Chief, I would like to go back and talk about, could you explain to me the operation of the main ballast tank? Actuators, main ballast tank actuators? Could you explain physically how that procedure occurs. Who does that? And, basically...let me step back. Could you explain the process of emergency surfacing the ship from the prospective of when the Officer of the Deck gives the order. In terms of who he gives the order to and how it is physically accomplished.

WIT: Okay, emergency surface the ship, is a procedure to get the ship, obviously to the, to the surface expeditiously using an emergency blow system. The Officer of the Deck will give that order in control to the Diving Officer and the Chief of the Watch. And in the case, he directed an emergency blow at ten second emergency blow. Which means that the Chief of the Watch is going to pass the word over the 1M...he is going to sound the alarm over the 1MC, the diving alarm. It's going to go three blasts. To let everybody know that the ship is going to emergency surface, because normally the diving alarm is not used when the submarine is underwater. It's just to dive the sub. And in the case it allows everybody to know that we're doing an emergency surface. The emergency surface is initiated by the Chief of the Watch operating two emergency blow actuators above the PCP where he stands watch at. These two levers control 4500 pound air. That goes through them, forward and aft of the submarine to, what we call our knocker valves. These knocker valves are holding back 4500 pound air in four different, four different air bags Our air bags one, two and four and five that are located in our ballast tanks. Once he throws these emergency blow valves...emergency blow switches to the open position, they send air to these knocker valves that open them up and letting air from the 4500 pound air bags, dump directly into the ballast tank at the shortest path possible. So, they are basically going straight from the bag and being routed directly into the ballast tank that is nearest to them. And in

this case, number one will got to the forward, forward ballast tanks, number two goes to the four ballast tanks, four or three ballast tanks. And then number four and five go to the aft two ballast tanks on a submarine. And it discharges large amount...large volumes of air into the ballast tanks and in this case, here, he did a ten second blow, so he...the knocker valves came open and stayed open about ten seconds before he shifted the levers to the shut position cutting off air to them and cutting off air in turn to the knocker valves that shut and stop the air going to the ballast tanks. But at this point large volumes of air is already is already in the ballast tanks and the submarine in coming up. Once the air is going to the ballast tank, me as Diving Officer of the Watch, we are directed to achieve a 20 degree up angle on a submarine. And we do that with the bow plain, or I mean, yeah, the bow plains and the stern plains by yelling 2 rise on those. They drive the bubble up to an upward angle, and between the air in the ballast tank, the upward angle on the ship and whatever speed the submarine has, the submarine is coming to the surface and there is nothing to stop it now at this point. We're coming, no matter what. And the submarine, it tails...comes to the surface. The plainsman or...obtaining the up angle and then once they hit the up angle then their trying to hold it, push it down from that area. Once you get to the 20 degree up angle, then you just...you're trying to just push it back down. And from that point on, we're calling out depth and waiting for the sur...I mean waiting for the submarine to broach the surface and level out on the surface.

CDR CACCIVIO: Chief could you explain the operation of the actual main ballast tank valve...what...what..how the operator operates the main ballast tank to actually...

(others start talking over)

WIT: There's two...two large levels located above the VCP. One for the forward and after blow system, and what they are is, their spring loaded levels where they have a button on the top, and he grabs hold of the levers and then pushes in the buttons. Then he has to throw them up through two positions. Once he goes up to the upper position, you know, you he let's the blow and then he pushes back down and then he pulls it all the way back down to a lower position.

CDR CACCIVIO: Does the, palm valve...did you...you push in on the palm, or do you pull back on the pull switch portion?

WIT: You're hol...you're holding on to a lever and pushing in.

CDR CACCIVIO: Okay. Who, who typically operates the valves?

WIT: The Chief of the Watch.

CDR CACCIVIO: Okay. Who operated the valves on this day?

WIT: The Chief of the Watch along with a stand-by VIP.

CDR CACCIVIO: Okay. Can you, can you describe the physical arrangement of how they operated these switches? Parallel or who physically operated them?

WIT: Well, I would say the VIP probably had his hands over the switches and, and the Chief of the Watch pushed his hands in, lifted them up, and then brought them back down. And, you know, from, from what I could I see at that angle.

CDR CACCIVIO: Okay. Could you see it very well?

WIT: I wasn't there....once he initiated the blow, I shifted back to driving the bubble to 20 degrees and making sure my plainsman do what I need then to do.

CDR CACCIVIO: Okay. Who...so prior to that he made the, he sounded the diving alarm and made the 1MC announcement. Who actually sounded the diving alarm, and who made the 1MC announcement?

WIT: The diving alarm, we have an auxiliary diving alarm, we have two diving alarms onboard. We use our auxiliary diving alarm in place of our dives and for the emergency surface. So what we do for that, we push a little button hold the 1MC up to it, and initiate that. The diving alarm was initiated by, I know Mr. Coen was right there, so that would have been the Officer of the Deck, but I don't know who else was there. I can't, I can't recall off the top of my head.

CDR CACCIVIO: Okay. Do you know who made the 1MC announcement?

WIT: No, I can't remember.

CDR CACCIVIO: Okay. Yesterday...to make sure I understand. You stated that, you had civilian UI watches on the helms and plains, inboard and outboard station, during angles and dangles?

WIT: No. I did not state that. I said, I had civilians changing depth between 600, 600 feet to 400 feet, during lunchtime, which was approximately about 11:30 til about 12:40 and that was well prior to angles and dangles.

CDR CACCIVIO: Okay.

WIT: Angles and dangles occurred just prior to 1300, and at that point, I had, my helmsman was Petty Officer Fiddler, which is a member of ship's force and my outboard's man was Seaman Riverez, which he controlled, the, the stern plains. And those two were on Th plains from the whole time, either over instruction whenever the civilians were on at lunchtime, and then they were there from the time we commenced angles and dangles and high-speed operations until we completed the emergency blow and was on the surface. So, at no time from the time we commenced angles and dangles did anybody other than ship's force drive the submarine.

UNKNOWN: To make sure I have it correctly...that fair?

CDR CACCIVIO: Yeah, I, I think you...now that you say that, I think you stated it correctly yesterday, but I don't think I interpreted what you said correctly yesterday. So, let me say what I think you are telling me and then you can telling me and then you can tell me if I'm right or wrong. During the lunch hour you did, changing depths, changing courses with civilian UIs under direct supervision of Navy operators on watch.

WIT: Yes.

CDR CACCIVIO: Following that, you secured all the UI watch standers and you commenced what we would refer to as angles and dangles which would be larger angles using upwards I think you said yesterday, of 15 and 20 degrees with no under instruction watches.

WIT: Right.

CDR CACCIVIO: Immediately following the angles and dangles is when you initiated the MBT blow after your periscope depth trip, obviously.

WIT: Right.

CDR CACCIVIO: There again, there were no UI watches with exception of the civilian with conjunction with the Chief of the Watch, you believe, operated the...

WIT: Emergency blow system...

CDR CACCIVIO: ...main valve emergency blow actuator switches.

WIT: Correct.

CDR CACCIVIO: Okay.

LT JOHNSON: Could I, could I ask something real...this is LT Johnson. Just for clarification for the record. Commander's ref...has referenced several times the term UI watches. My understanding of a UI watch stands for under instruction, that is a person, an individual who does not maintain, the qualifications to operate that equipment or that...perform that duty and function solely alone by themselves without direct supervision.

WIT: Exactly.

LT JOHNSON: UI watches are quite common on submarines and ships in order train people, and it's, it's commonly done.

WIT: Yes.

LT JOHNSON: But the term UI watch just simply means that someone is not normally qualified to act alone.

WIT: Right, and at that point, for example on the plains, the, if you have somebody on the inboard station controlling the bow plains and the rudder, the other individual will be standing right beside them....

LT JOHNSON: Sure.

WIT: ....giving them guidance on what they need to be doing in regards to whatever commands are given to them, or however is necessary in order to keep the ship on depth or speed or whatever.

LT JOHNSON: When, when you have a UI watch on the helms and plains, is it normally, do you not have a Diving Officer, which would be yourself in this case, sitting, within mere inches of them....

WIT: Yes.

LT JOHNSON: ....on one side and the qualified watch literally within inches of them on the side....

WIT: Exactly.

LT JOHNSON: ....as well. Okay. So okay, these...I just want to make that...clarify that at that point there.

WIT: The, the, the attentive level obviously goes up...

LT JOHNSON: Sure.

WIT: ....in regards to what their doing. The other thing that you're, you're doing is, your trying...you're telling them,...

LT JOHNSON: No.

WIT: ...how much to put on....

LT JOHNSON: Right.

WIT: ....because obviously, they don't know exactly what they're, they need to do. So you tell them how much to plains to put on...

LT JOHNSON: Sure.

WIT: ....to push it down or up, or whatever the case may be.

LT JOHNSON: One last question, I promise I'm done Chief. I was reading my notes from your interview yesterday, and you commented in there something that I, I just picked up on. That is that the Commanding Officer got on the 1MC during the EMBT blow as you were getting close to the surface and began to describe the affects of what the people were about feel or experience.

WIT: Right.

LT JOHNSON: Is that normally done? Whenever a EMBT blow..

WIT: A normal blow with the ship's...

LT JOHNSON: ...an EMBT blow.

WIT: ....with the crew. Not, not when the ship's having a regular crew. Now what the Captain has done in the past, even whenever we just the crew onboard, he'll explain to the crew what the ship is doing. Specifically, specifically for the new individuals who are onboard the boat....

LT JOHNSON: Sure.

WIT: ....because every time we go to sea, we are always doing rotation of individuals and it seems like we will have at least two or three or four new guys onboard....

LT JOHNSON: Right.

WIT: ...the boat.

LT JOHNSON: Right.

WIT: And the same thing is done, prior, prior to angles and dangles, he'll get on and say the ship is going to be taking large, large degree, depth changes along with large rudder angles and large, change of depth, so...

LT JOHNSON: You...my question is, is mainly though, do these briefings occur prior to the evolution or during the evolution normally.

WIT: Well, the, for the crew it's prior to. When the, the emergency blow evolution, he was on the 1MC explaining to everybody what was happening while we were doing it so the VIPs understood.

LT JOHNSON: Would this, would this, explanation by him on the 1MC...and you, you may not know the answer to this, so please feel free to say that you just don't know. Would it have any affect on the sonar operator’s ability to, to listen and hear anything in the water with the noise, the generated noise, amplifiers and speakers within the boat?

WIT: They would be...

LT JOHNSON: Would they, would they be list...

WIT: ....I would, I would....

LT JOHNSON: ....taking their headphones off to listen?

WIT: ....I would say no. They have headphones on.

LT JOHNSON: Okay. Thank you.

WIT: And their headphones does not get cut off by the 1MC.

LT JOHNSON: Oh, that was...

WIT: And they, they are directly on, on the console on what they are listening to in the water. The 1MC only overrides the speakers on the ship.

LT JOHNSON: Okay. Does not...there's nothing to interrupt to your knowledge the, the headphone operation for the sonar tech?

WIT: No.

LT JOHNSON: Thank you. I am done.

CDR CACCIVIO: This is Commander Caccivio again. Hey, Chief, if you were in your bunk and all of a sudden heard the diving alarm, three times and felt the ship moving upward, what would you think?

WIT: If it was in the middle of the night? We have a problem.

CDR CACCIVIO: Okay. If you just woke up would you know it was the middle of the night.

WIT: If I know what time I went to bed, yeah.

CDR CACCIVIO: So would it help to have...so is...

WIT: The 1MC announcement is done basically for...even, even when the crews on there, just to let them know. The same thing whenever were doing any type of evolution that, if you do a training evolution in control that, that takes large angles on the ship, usually the Captain or the Officer...or the Captain will direct the Officer of the Deck to come on the 1MC to explain what the ship is doing, so that people, even though they may be in a rack, they may have an understanding, that, hey, this is not a catastrophe, or this is not an emergency or this is just for training, so, don't respond to it.

CDR CACCIVIO: Chief, would it be...you are obviously qualified helmsman and plainsman at some point in your career, is that correct?

WIT: Yes.

CDR CACCIVIO: Would it be safe to say that the Diving Officer of the Watch would be considered, by...who, who diving...who signs the helmsman's/planesman qual cards? Is it the Diving Officer of the Watch?

WIT: Aw yeah. The Diving Officer of the Watch is the Diving Officer of the ship, the Officer of the Decks, Chief of the Watches, there numerous qualification signatures on their qual cards for various different qualings and stuff. As well as the functions that they have to perform. So, there's signatures and, and, and their training that they get, it doesn't come quick, and, and, it takes awhile for them to be on the plains. They actually sit numerous UIs on the plains before they even get qualified.

CDR CACCIVIO: If an under instruction watch, or in this case, or civilian where to not take appropriate action, what would you expect your watchstanders to do?

WIT: I would expect him to intervene and take control of the, certainly the control surface and put it into direct...the, the necessary procedure that he need to do. Whether it is dive or rise or right or left rudder or whatever the case may be. And then at that point I would try to get the UI out of the seat and get back in the seat.

CDR CACCIVIO: So you have the ability to secure the UI watch?

WIT: Yes.

CDR CACCIVIO: Okay. If he did not take the...if the qualified watch stander does not take his required actions in the appropriate amount time. What would you do?

WIT: The qualified watchstander?

CDR CACCIVIO: Right.

WIT: If, if he's not taking it, I'm directing him to take it. Then if he's still not doing it, then I'll intervene.

CDR CACCIVIO: Okay. That's all I have.

MR. WOODY: Bill Woody. Along that line of questioning, when the vessel, vessel was brought to periscope depth and the OOD was taking his sweep around and then later the Captain was taking his sweep around, in any time did they coach you to get back on depth?

WIT: No.

MR. WOODY: The did not. Thank you.

LCDR SANTOMOURO: Lieutenant Commander Santomauro. Chief, I, I...to get it on the record, Navy guests, are kinda different than under instruction watches, and just....

WIT: Right.

LCDR SANTOMOURO: ...just to get it on the record again. There are no Navy guests and no, no UI watches were in any position, either helmsman or plainsman during high speed maneuvers, angles and dangles, or during the emergency main ballast tank blow to the surface?

WIT: When we were doing periscope depth operations, no there was nobody on those plains.

LCDR SANTOMOURO: The only time....

WIT: Except the normal ship's....

LCDR SANTOMAURO: The only time....

WIT: ...person.

LCDR SANTOMAURO: The only time any Navy guest were on the surface, were during lower speed, lower angle maneuvers between 4 and 6 hundred feet.

WIT: Exactly.

LCDR SANTOMAURO: Okay.

WIT: And the minimum, I mean, the maximum angle they, they got to was 3 1/2 and we tried to maintain between three and three and a half degrees going to depth change, which is not much at all.

LCDR SANTOMAURO: Okay. And then the second question I got. Once you initiate the emergency main ballast tank blow and you're, you're putting 4500 pound air into the ballast tanks and the ship's assenting to the surface, how much control does the helmsman have over the ability to control the ship? At that point?

WIT: As far as driving the submarine?

LCDR SANTOMAURO: How much, how much affect would the rudder have on, on, the....

WIT: Very little.

LCDR SANTOMAURO: ...the ship. Okay. How...

WIT: As well as the other plains. Once we achieve the up angle....and, and even if we didn't achieve an up angle, we're still coming to the surface with the blow.

LCDR SANTOMAURO: So...can you....will the stern....can the stern plains be used to minimize the up angle?

WIT: The stern plains? As well as the bow plains? Yes. We can drive the bubble off, if, if we decide that we don't want to achieve a 20 degree up bubble, we can try to fight that down and keep it down. But, it's still going to come up somehow.

LCDR SANTOMAURO: So, it's fair to say that, once you've initiated the emergency main ballast tank blow, that, that, that the ship actually....just kinda acts like beach ball. It's going to the surface.

WIT: Exactly. And as it continuously goes to the surface, the buoyancy level increases on the submarine and we're continuously going up quicker.

LCDR SANTOMAURO: Thank you.

LT KUSANO: Lieutenant Kusano. Based on what Commander had to say, I have one question. You mentioned yesterday that when you started the emergency blow, you had a course of 3-2-0 approximately.

WIT: No. I said that, that there was a left rudder put on for us to come towards course 3-2-0.

LT KUSANO: Okay.

WIT: And I don't think we every ended up over at that course.

LT KUSANO: Do you remember, what course you were at, what heading you were at when you finally surfaced?

WIT: I can only approximate that it was somewhere near the course in the morning. That, I can't be sure.

LT KUSANO: Thank you.

UNKNOWN: I have a couple of questions Chief. Regarding courses, could you, recount the various courses that the ship steered from, say they were doing the periscope checks, resurfacing...

WIT: I know that the....

UNKOWN: ....and etceteras.

WIT: I know that at 150 feet to do the baffle clears, we did a right and left rudder change. We did a right and left in order to clear baffles once we, settled, settled out above the....because during this, you know, I was directing them to use the stern plain and the bow plains in order to keep us within, you know, within 150 feet depth of that. So, exactly what course we came to? I couldn't even tell you. I mean, this is something we do all the time, so, I don't pay extreme attention to it, until we are on course, settled out, and then if we stay at that course for awhile, I make sure we don't stray from that course. Just by paying attention to the, to the, the course indicators. At periscope depth, when we were up at PD, I don't know if we did any changes. I really couldn't tell you. We probably did, but I, I don't know. We went down to do....when we did the emergency deep, we, we obviously did a right rudder change, we came right, and once we were down at 400 feet we did a left rudder change. And then we ordered a rudder amidship prior to when we commenced the emergency blow. And by going rudder amidship, then the course swings over and starts on his own.

UNKNOWN: Is there a written record, of, course changes and....

WIT: The Chief of the....

UNKNOWN: ....depth checks....

WIT: ....Wa....not the Chief of the Watch, but the Quartermaster will have it in his logs.

UNKNOWN: Okay. Every, every order given for course changes....

WIT: Every order given by the Officer of the Deck or if he does depth checks and compass checks and stuff like that, that will be in there. And any other specific orders as directed to him.

UNKNOWN: You indicated that once you initiate and emergency main ballast blow evolution that there is no way to stop it.

WIT: Once you....especially at 400 feet, once you get the acceleration going up, whether you have an angle on the ship or not, the air's in the ballast tank. The only way to stop it...actually, you are not stopping a submarine. The only way to decrease it, is to open the vents and let the air out of the ballast tank, but there is no possible way to get that air out of the ballast tank prior to you getting to the surface.

UNKNOWN: Do you have any....could you estimate how much, I mean, how, like how much you can slow accent by venting the ballast tanks?

WIT: I, I couldn't even begin to guess. 'Cause we, I have never done that. I have not.

UNKOWN: That's, that's a....

WIT: We've done an emergency blow, we've went straight to the surface.

UNKNOWN: So, in your experience you have never....after initiating an emergency blow, subsequently opened the vents to reflood the ballast tanks.

WIT: No.

UNKNOWN: You described something you called knocker valves. Could you explain what their function is?

WIT: Okay. Let's see. There's, there's one, one for each, each side of the submarine, so you for each air bank that we have. So you....what they are, is their large valves that's located in various positions of the ship. In this case you have

two of them located all the up at the forward end of the ship. There are the forward ballast tanks. They are inside the submarine and what they do, is their large valves. We call them knockers valves because, if you had to manually operate them, you'd have to, ratchet the handle over and over and it has a knocking evolution because you can only move it a little bit at a time. And what they are designed to do, is that they are designed to hold back 4500 pound air. And, by using the knocking mechanism, it brings it open slowly, and a little bit at a time to let the air seep by instead of having large volumes of air blow by quickly. So they open slowly. And, the blow switches in control operate these knocker belts. And like I said, there's one for each one of the air bags. So you have one for air bag number one, one for air bag two, and then aft four and five. And, in control when the Chief of the Watch operates the blow switches, he sends 4500 pounds air from the **CO's air flask**, which is another air, air flask that's holding specific air there to operate these knocker valves. And what this does, is send air there to open the valves up, they come open and then they let the air go straight to the ballast tanks.

UKNOWN: So the activation switches are actually probably controlling like a pilot air.

WIT: Yeah, pilot air and CO's air flask.

UNKNOWN: Okay. Regarding the duration of the, of the blow, you say ten seconds is typical. How is that timed? Is it counted out orally? Or is it....

WIT: The Chief of the Watch usually counts it out and, I'm sure somebody else is looking, but, usually the Chief of the Watch is controlling that. And then if the Officer of the Deck, you know, identifies that he's done ten seconds, then he tells them to shut it.

UNKNOWN: Is the timing critical, or is it...do you have to look at a stopwatch, or you just kinda estimate....

WIT: Naw...

UNKNOWN: ....ten seconds?

WIT: It is not critical. You estimate 10 seconds.

UNKNOWN: Okay. Chief, that is about all I have for you now. Anybody else have questions for the Chief? Okay with that, the

time is approximately 1041, that concludes our interview with Chief Streyle. Thank you very much Chief.

WIT: Yes. Sir.